

FOR
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Croplife

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RUSSIANS INSPECT TANKS—Anhydrous ammonia tanks, that is. Three members of Soviet Agricultural Delegation at Great Plains Agricultural Ammonia Assn. demonstration near Ames, Iowa, are seen getting all information possible about anhydrous ammonia. Their interpreter, Nikilai Gureev (left hat) is deputy chairman of the Council of Ministers, a cabinet position. At his left (bushy hair) is Nikolai Bogach, director of a farm machine and tractor pool in the Ukraine, and in the dark coat is Aleksandr Ezhevski, assistant to the minister in charge of agricultural implement production in Russia. With his back to the camera, is Prof. Kenneth Barnes of the agricultural engineering dept. of Iowa State College, who conducted the Russians on the tour. (See story on page 21.)

Anhydrous Industry Operating At One Fourth of Potential, Great Plains Meeting Hears

By LAWRENCE A. LONG
Editor of Croplife

DES MOINES—That the anhydrous ammonia industry in the U.S. is operating at only about one quarter of its potential, was one of the important points emphasized by speakers appearing before the third annual meeting of the Great Plains Anhydrous Ammonia Assn. at the Ft. Des Moines Hotel here July 20-21.

The importance of both sales and service was emphasized on all sides; a comprehensive trade show was included wherein makers of many types

of applicators, valves, gauges and pumps displayed their wares; and a demonstration of application equipment all combined to make the convention a memorable event for the nearly 300 persons in attendance.

To add to the significance of the meeting, the NH₃ demonstration near Ames, Iowa, was attended by Soviet Agricultural Delegation members, who asked many questions about the cost of the fertilizer, how many pounds are applied to the acre and the amounts of gasoline required to run the tractor.

As reported in last week's Croplife, the first day's activities included welcoming remarks by B. A. Frankl, Mor-Gro, Algona, Ia., GPAAA president; and talks by Prof. C. J. Chapman, soils department, University of Wisconsin, Madison; Dr. E. R. Duncan, Iowa State College, Ames; Dr. John C. Strauss, vice president, Liquidizer Co., Vincennes, Ind.; and Pax Shaffer, L. W. Ramsey Advertising Agency, Davenport, Iowa.

Speaking on the subject of complete

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INSECT, PLANT DISEASE NOTES

See Page 4

Calspray Breaks Ground for New Fertilizer Project

— See Picture on Page 17 —

RICHMOND, CAL.—Earth moving has been started at the site of the California Spray-Chemical Corp.'s new, four plant fertilizer project at Richmond, Cal.

The four Calspray plants are part of the six plant, \$16,000,000 fertilizer project of Standard Oil of California and its subsidiary, Calspray. (See page 1 of the March 7 Croplife.)

The pelleted complex fertilizer plant and the ammonium nitrate

(Continued on page 17)

NH₃ Use Up 17% In First 5 Months, Survey Indicates

MEMPHIS—Results of a recent survey indicate that the nation's farmers used 17% more anhydrous ammonia for direct application to their crops during the first five months of 1955 than during the same period in 1954.

The survey, conducted by the Agricultural Ammonia Institute and reported in the July-September issue of the Agricultural Ammonia News reached distributors of agricultural ammonia throughout the nation.

The trend was indicated in reports from distributors whose combined tonnage for the five months accounts for nearly 10% of the 390,000 tons of anhydrous ammonia that the U.S. Department of Agriculture predicted would be applied by direct application in the 1954-55 fertilizer year.

Forty-four distributors reported the distribution of over 35,465 tons of NH₃ during the first five months of 1955 as compared to 30,112 tons for the same period in 1954.

Even with the over-all increase, 18 distributors told of lower sales in

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Monsanto, Lion Oil Directors Vote Merger

Stockholders of
Two Firms to Act
On Proposal Sept. 23

— See Picture on Page 8 —

The board of directors of Monsanto Chemical Co. and Lion Oil Co. have signed an agreement of merger of Lion with and into Monsanto. The agreement will be submitted for approval to stockholders of the two companies at meetings called for Sept. 23.

In a joint announcement, Monsanto's president, Charles Allen Thomas, St. Louis, and Lion's board chairman, T. H. Barton, El Dorado, Ark., stated that the basis of merger if approved by the stockholders will be the issuance of 1½ shares of Monsanto \$2 par value common stock for each outstanding share of Lion stock. Both boards have

(Continued on page 8)

Garfield to Expand Sulphuric Facilities

SALT LAKE CITY—Plans for expanding the sulphuric acid manufacturing facilities of Garfield Chemical & Manufacturing Co. have been announced. American Smelting & Refining Co. and Kennecott Copper Corp. are joint affiliates in the firm.

Plans include uprating the capacity of the plant to 1,000 tons a day. Current rated capacity is 750 tons a day.

Problems for Farm Chemical Trade Seen in Gloomy Outlook For U.S. Cotton Production

— SPECIAL REPORT —

By JOHN CIPPERLY

Croplife Washington Correspondent

WASHINGTON—The seriously large surplus of cotton and the impediments to the United States Department of Agriculture in selling its surplus accumulations of old crop cotton—particularly the less desirable staple lengths—are things that merit the attention of the plant food industry.

USDA top policy officials informed Croplife last week that unless some way can be found to break the log-jam against sales of this commodity in export and domestic markets shortly, it is forecast that U.S. cotton production will be on the skids, and the U.S. cotton producers will have lost their markets to producers in other parts of the world.

This forecast is an ominous warning, not only to plant food industry officials, but also to producers of pesticides whose efficient products have been able to maintain cotton production in the U.S. It is a signal that the cotton industry may be a declining market notwithstanding the great contributions pesticide and plant food industries have made.

In the closing weeks of the current session of the 84th Congress

the situation is approximately this: USDA policy officials want to move substantial quantities of their stocks of short staple cottons in world trade at world prices.

Under the Commodity Credit Corp. charter they appear to have that authority, but other government

(Continued on page 17)

Preliminary Program Announced for Fall Safety Meeting

CHICAGO—The preliminary fall program for the Fertilizer Section of the National Safety Conference has been announced by J. L. Shopen, Consumer's Cooperative Assn., Kansas City, chairman of the section's public relations committee.

Scheduled to appear on the program Oct. 17, are the general chairman, Thomas J. Clarke, GLF Soil-Building Service, Ithaca, N.Y.; Vernon Gornto, Smith-Douglass Co., Norfolk, Va.; Max W. Foresman, director of public and plant relations of Spencer Chemical Co., Kansas City, Mo.; P. W. Logan, divisional manager of Liberty Mutual Insurance Co., Atlanta, Ga.; Dr. Charles W. Nelson, University of Chicago; and Curtis A. Cox, Virginia-Carolina Chemical Corp., Richmond, Va.

On October 18, a panel discussion is on the agenda, as is an address by B. J. Phillips, safety director of Coronet Phosphate Co., division of Smith-Douglass Co., Plant City, Fla.

Scheduled to appear on the safety panel, of which Curtis A. Cox is to be moderator, are the following: Duncan MacDonald, safety engineer, Anaconda (Mont.) Copper Mining Co.; R. G. Diserens, safety director, Phillips Chemical Co., Bartlesville, Okla.; Fred H. Courtenay, secretary, Federal Chemical Co., Louisville, Ky.; C. L. McDaniel, technical service supervisor, Lion Oil Co., El Dorado, Ark.; Robert P. Henry, agricultural department, Willson Products, Inc., Reading, Pa.; Albert A. Waugh, safety supervisor, International Minerals & Chemical Corp., Bartow, Fla.; and D. Lydy, safety engineer, Goodrich-Gulf Chemicals, Inc., Port Neches, Texas.

Meetings will be held at the La Salle Hotel, Chicago, Oct. 17-18. The National Safety Congress, of which the Fertilizer Section is a part, will hold its meeting during the entire week of Oct. 17-21.

American Cyanamid First Half Sales, Earnings Show Gain

NEW YORK—American Cyanamid Co. has announced today the operating results for the first half of 1955. Net sales of the company and its wholly-owned subsidiaries were approximately \$225,357,000 as compared with \$196,083,000 for the first half of 1954.

Consolidated earnings before tax approximated \$36,059,000 for the first six months of 1955 as against \$26,263,000 for the corresponding period last year. The provision for federal and foreign taxes on income was \$17,500,000 and in the preceding year the amount for the first half was \$12,300,000.

Consolidated net earnings were \$18,559,000 against \$13,963,000 for the 1954 period.

Common stock outstanding increased to 8,759,233 shares at June 30, 1955 from 8,722,921 shares at Dec. 31, 1954 as a result of conversions of preferred stock during that period.

After deducting dividends on preferred stock (\$1,139,465 for 1955 and \$1,612,811 for 1954), net earnings applicable to common stock for the first six months of 1955 amounted to \$1.99 per share based on common stock outstanding June 30, 1955 compared with \$1.58 per share for the first six months of 1954 based on shares outstanding at the end of 1954.

American Potash Sales, Net Income Show Increase

LOS ANGELES — Operations of American Potash & Chemical Corp. in the first half of 1955 resulted in sales and net income substantially higher than in the corresponding period last year, Peter Colefax, president, said recently in a report to shareholders.

Sales for the six months ended June 30, 1955 totaled \$13,828,853, an increase of \$1,891,899 over the \$11,936,954 reported at the halfway mark of 1954.

Net income amounted to \$1,847,898, equal, after deducting preferred dividend requirements, to \$2.96 a share on the 585,447 shares of Class A and B stocks outstanding. This compared with \$1,090,294, or \$2.08 a share, on the 431,727 shares of Class A and B stocks outstanding on June 30, 1954.

For the second quarter of 1955, sales totaled \$7,077,619, compared with \$6,014,308 in the same period of 1954. Net income was \$1,011,264, or \$1.63 a share, on 585,447 shares after deducting preferred dividends, against \$558,349, or \$1.07 a share on 431,727 shares, in the second quarter of 1954.

During the second quarter of 1955, the company's operations at Trona continued to show increased costs as compared with the previous year, Mr. Colefax said. He attributed the lower-unit costs to improved operating efficiency and capital expenditures made on plant improvements in recent years.

Construction of the lithium chemicals plant at San Antonio of American Lithium Chemicals, Inc., in which American Potash & Chemical Corp. holds a 50.1% interest, is proceeding on schedule with completion planned for Dec. 1, 1955, Mr. Colefax said.

Stauffer Reports Record First Half Sales, Earnings

NEW YORK—Record sales and earnings during the first half of 1955 for Stauffer Chemical Co. have been reported by Hans Stauffer, president. Net sales for the six months ended June 30, 1955 were \$50,178,000, an increase of 25% over the same period in 1954. Net earnings of \$4,128,000, or \$1.76 per share, increased 41% over the first half of 1954.

Net sales for the second quarter of 1955 were \$28,031,000, with net earnings of \$2,549,000 or \$1.09 per share. This represents an increase of 27% in sales and 41% in earnings over the corresponding period last year.

According to Mr. Stauffer, "the improvement in earnings can be attributed primarily to increased volume in existing product lines, additions to income from new products and improved operating efficiencies at the four new plants placed on stream during 1954."

It was reported further that the company has three new plants under construction, scheduled for completion in 1956—a new carbon bisulphide plant at Le Moyne, Ala., and new agricultural chemical plants at Omaha, Neb., and Reynosa, Tamps, Mexico.

In his report to stockholders, Mr. Stauffer noted that several products developed by the company's research department would reach commercial markets late this year, stating: "the continued development of new chemical products and processes is the best 'insurance' for the company's future sales and earnings."

Louis H. Wilson Presented Editors' Award For "Meritorious Service to Agriculture"

OMAHA—Louis H. Wilson, secretary and director of information for the National Plant Food Institute, Washington, D.C., was presented the Reuben Brigham Award by the American Association of Agricultural College Editors "for meritorious service to agriculture."

The presentation was made July 27 at the concluding banquet session of the association, membership of which comprises the extension and experiment station editors of the nation's land-grant colleges.

The award is given annually by AAACE to a non-member of the association in the fields of agriculture or home economics, who has made outstanding contributions in the public relations and journalism professions.

The award is a memorial to Reuben Brigham, one of the founders of the association. Mr. Brigham had a long and distinguished career in agricultural information work in Maryland and in the U.S. Department of Agriculture. He was assistant director of the Federal Extension Service at the time of his death.

"I am grateful to you for honoring our (the fertilizer) industry which has made my work with you possible," Mr. Wilson said in accepting the award. "And, I am particularly grateful for the recognition, the cooperation, the friendly working relationships that exist between industries that have farmers as their customers and the extension service and experiment stations."

"In helping our land-grant colleges to build a sound land-management program, we are helping in building a sound program for business. Most industries with farmers as their customers realize that prosperity for the farmer means prosperity for the associated industries of agriculture."

"By joining hands with the extension and experiment station editors, agricultural industry has taken its first step forward in promoting a sound agricultural program and in building a self-sustaining agriculture."

William B. Ward, president of the association and head of the Department of Extension Teaching and Information, Cornell University, Ithaca, N.Y., announced that "this is the first year the award has been made to a representative of the agricultural trade." Other recipients were representatives of the mass communication media.

Mr. Wilson, prior to his present position, was secretary and director of information for the American Plant Food Council. He came to Washington, D.C., in 1945, as director of public relations for the National Grange, after serving six years (1937-1942) as secretary of the Board of Agriculture and director of publications for the North Carolina Department of Agriculture at Raleigh. Previously, he had served as assistant extension editor, Extension Service,

New Mexico Feedmen To Plan Program For Fertilizer Dealers

ALBUQUERQUE, N.M.—The New Mexico Grain and Feed Dealers Assn. will devote a special portion of its 1956 convention to matters of interest to fertilizer and farm chemical dealers, says H. B. Hening of Albuquerque, secretary of the association.

Clayborne Wayne of the Farmers Market, Hatch, N.M., vice president of the association, has been named chairman of a committee to plan this part of the program. The convention will be held Jan. 15-17, 1956, at the Hilton Hotel, Albuquerque.



Louis H. Wilson

North Carolina State College, at Raleigh.

He served as a member of secretary of agriculture Benson's National Advisory Committee on Information Services, is a member of the board of consultants of the Farm Film Foundation and recently was elected to a three-year term as a member of the awards committee of the American Forestry Assn. He has also been active in affairs of agricultural public relations organizations.

In 1953, he was presented a lifetime membership in the American Agricultural Editors' Assn. (comprising the nation's farm magazine editors) "in recognition of the outstanding service he has rendered American agricultural journalism and country life."

The award, a bronze plaque, was presented by Earl Richardson, extension editor of Michigan State College, a member of the AAACE 1955 Awards Committee.

Diamond Alkali Net Sales, Earnings Set New Records

CLEVELAND—Substantial increases in sales and earnings of Diamond Alkali Co. for the first six months of 1955 over the same period in 1954 have been reported by John A. Sargent, president of the firm.

Both net sales and earnings, continuing the first quarter pattern, set new records as they climbed to the highest levels in the company's 45-year history. Sales showed a 14% increase, and earnings per common share registered a 29% gain over the same period in 1954, Mr. Sargent said.

Net sales for the six months ended June 30, 1955, totaled \$53,660,322 against \$47,059,190 in the same 1954 period.

Net income for the first half of 1955, after provision for federal income taxes, was \$4,045,573, which after preferred stock dividend, equivalent to \$1.67 per share on the 2,269,393 common shares issued and outstanding. This figure compares with net earnings of \$3,197,758, or \$1.29 per share on the same number of shares for the first six months of 1954, restated to reflect the average federal income taxes and certain other items in 1954.

VIRUS DISEASE

ST. LOUIS—A sharp increase in virus disease which attacks sycamore trees has been reported here by Palmer B. Baumes, park commissioner.

Du Pont Earnings First Six Months

WILMINGTON—Du Pont de Nemours & Co. reported earnings of \$3.98 per share for the first six months of 1955, compared with \$3.15 for the same period in 1954. The company's operating income was \$3.15 per share from operations, and dividends were \$1.00 per share.

Earnings for the first six months of 1954 were \$3.22 per share, of which \$2.41 was from operations and \$0.81 from General Motors.

Sales for the first six months of 1955 were \$942 million, an increase of 15% over the \$815 million for the comparable period in 1954.

The increase was due to a physical volume increase in many of the company's sales prices, which were below the first six months of 1954. Sales for the second quarter were \$469 million, compared with \$418 million for the first quarter.

Michigan Income, Sales Show Increase

SAINT LOUIS, Mo.—The chemical Corp. reported first six months ended June 30, 1955, net income of \$0.21 per share, compared with \$0.18 a share in the first six months of 1954.

Before taxes, the company's net income for the first six months of 1955 was \$18,999 in the company's 1954. After taxes, the net income was \$17,838 net gain, or \$0.21 per share.

Sales for the first six months of 1955 were \$141,238 in the company's 1954, compared with \$137,838 in the first six months of 1954.

The second quarter net income was \$107,988, a 54% increase over the \$69,400 for the first six months of 1954, or \$1.72 per share. Physical volume was up with dollar volume, and lower DDT prices. There was \$183,400 in depreciation and amortization, and \$55 as compared with \$50 in the first quarter.

The company reported a 14% increase in sales and a 29% increase in earnings per common share registered a 29% gain over the same period in 1954, Mr. Sargent said.

Cooper Spray Parts in Mass

BOSTON—An aerial spraying program to control the spruce sawfly in Barnstable County, Mass., is being carried out by the Lymington State House here.

The project, covering 1,000 acres, is being carried out with a DDT spray plane flying at 100 feet, according to Earl Richardson.

FLY INFESTATION

AMES, IOWA—A fly infestation in a beef processing plant has been reported here, according to Earl Richardson.

Du Pont Sales, Earnings Gain in First Six Months

WILMINGTON, DEL.—E. I. du Pont de Nemours & Co. has reported earnings of \$3.98 per share of common stock for the six months ended June 30, 1955. These earnings consisted of \$3.15 per share from the company's operating activities and 83¢ per share from General Motors dividends.

Earnings for the first six months of 1954 were \$3.22 per share of which \$2.41 was from operating activities and 81¢ from General Motors Corp.

Sales for the first six months of 1955 were \$942 million, an increase of 15% over the \$821 million for the comparable period in 1954.

The increase was due to greater physical volume of sales as the company's sales price index was slightly below the first six months of 1954. Sales for the second quarter of 1955 were \$469 million as compared with the record high of \$473 million for the first quarter.

Michigan Chemical Income, Sales Show Increase

SAINT LOUIS, MICH.—Michigan Chemical Corp. figures for the six months ended June 30, 1955, showed net income of \$0.25 a share of common stock as compared to a loss of \$0.18 a share in the first six months of 1954.

Before taxes, the earnings were \$141,238 in 1955 against a loss of \$118,999 in the comparable period in 1954. After taxes and giving allowance for tax credits, the figures were \$37,838 net gain against a loss of \$4,299.

Sales for the period were \$3,311,011 in the 1955 period and \$2,934,042 in the 1954 six months.

The second quarter showed an improvement in net earnings before taxes of \$107,988 against \$90,064 in 1954 even though sales were lower for the 1955 quarter as compared with 1954, or \$1,723,282 against \$1,661,116. Physical volume was larger though with dollar volume off because of lower DDT prices.

There was \$183,444 allowance for depreciation and amortization of property, plant, and equipment in 1955 as compared with \$170,178 a year ago.

The company reported further activity in projects leading towards greater utilization of its brine materials and unused equipment. Attention also is being centered on diversification into certain petroleum chemical fields.

Cooper Spray Program Starts in Massachusetts

BOSTON—An aerial spray program to control the pine looper began in Barnstable County, Mass. July 1, under the leadership of Arthur T. Lyman, commissioner of natural resources, reported at the State House here.

The project, covering 200,000 acres of insect-infested treeland, is being carried out with a \$100,000 emergency appropriation. Single-engine planes flying at 100-foot altitudes are doing the spraying.

FLY INFESTATIONS

AMES, IOWA—Fly infestations reduce milk production by 10% and cut beef gains ¼ lb. or more a day, according to Earle Raun, Iowa State College extension entomologist.

James A. Hughes Named Treasurer Of Diamond Alkali

CLEVELAND—James A. Hughes, vice president and general manager of the Bryant Heater Division of Affiliated Gas Equipment, Inc., for the past five years, has been elected treasurer of Diamond Alkali Co., it was announced here recently by John A. Sargent, president, following action by the board of directors.

Mr. Hughes succeeds Arthur W. Crossley, treasurer since July 1, 1948, who is leaving Diamond at an undetermined date, at which time he will announce his future plans.

From 1940 to 1944, Mr. Hughes was associated with the American Shipbuilding Co., Cleveland. Then he joined Dresser Industries, Inc., as an administrative executive specializing in the fields of industrial relations and law. When Dresser sold its Bryant Heater Division to the newly-established Affiliated organization in 1949, Mr. Hughes was named vice president and general manager of its largest divisional plant.



E. T. Collinsworth, Jr.

Velsicol Forms New Company to Handle Foreign Sales

CHICAGO—Velsicol Corp. has announced the formation of a separate company to handle its foreign trade activities. The new company will be known as Velsicol International Corp., C.A. The main office is to be located in Chicago while a branch office is to be located in New York City.

The new organization will be headed by E. T. Collinsworth, Jr., who has been named president. He still retains his post as vice president and general manager of the parent company.

Velsicol Corp. manufactures technical chlordane, heptachlor and endrin. The new Velsicol International Corp. will not only assume responsibility for foreign insecticide sales, but will also be concerned with the marketing of the other Velsicol products outside the U.S. These products include resins, solvents and saturants.

\$1 Million Warehouse Construction Planned

SOUTH ST. PAUL, MINN.—The Farmers Union Central Exchange plans to erect a \$1,000,000 center for its feed, fertilizer and other farm supplies in South St. Paul, Minn.

Work will begin shortly and is expected to be completed some time in 1956, according to E. A. Syftstad, general manager. The building will be the office headquarters of Central Exchange which supplies local member cooperatives in this area.



SEEN AT TEXAS MEETING—Minter Womack, center, president of the Texas Seedsmen's Assn., talks over the Short Course for Seedsmen at Texas A&M College with Dr. J. E. Adams, new dean of the School of Agriculture, right, and J. Roy Quinby, superintendent of the Chillicothe substation of the Texas Agricultural Experiment Station. Mr. Quinby recently shared in the Hoblitzelle Award for Service to Agriculture, with J. C. Stephens. They received the award for their work on hybrid sorghums, soon to be available for farmer use. Mr. Womack is with the Ferris Watson Seed Co., at Garland.

Reports on Fertilizers and Insecticides Heard at Texas Seedsmen's Short Course

COLLEGE STATION, TEXAS—Several subjects of interest to the farm chemical industry were presented at the Short Course for Seedsmen held recently at Texas A&M College.

M. K. Thornton, extension agricultural chemist at the college, spoke on "Fertilizer Practices" and lack of practices. He stressed the advisability of following college recommendations and results of soil tests.

Dr. J. C. Gaines, head of the college's Entomology Department, spoke on the new insecticides, pointing out family relationships among the poisons, describing the way each acts, and giving the seedsmen a basis for a working choice of materials for a given insect and crop situation.

Lester Young, of College Station, administrative officer, Agricultural Stabilization and Conservation, made the first public announcement in Texas of a wind erosion control program for counties in the High Plains area.

Under this plan, ASC will share the cost—\$1.20 to \$2.00 per acre as ASC's share—of establishing cover crops of sorghums, millets, rye, oats and barley, effective immediately. In the meeting he also announced a change in ASC's winter legume program, whereby the ASC's share of cost will be cut from 80 to 50%.

The Texas phase of the wind erosion control program now in effect is bounded on the south by these counties: Willbarger, Foard, Knox, Haskell, Jones, Nolan, Coke, Tom Green, Irion, Reagan, Upton, Crane, Ward, Reeves and Culverton.

Cliff Deaton, chief, Seed Division, Texas Department of Agriculture, outlined changes in the Texas weed seed law caused by the Texas Seed Law amendment which became effective June 14. Major changes dealt with noxious weeds in commercial seed, and their sales into the state.

Tom Harpool of Harpool Seed House, Denton, Texas, was general short course chairman, and Dr. R. C. Potts of the college's Agronomy Department was in charge of local arrangements. Dr. Potts, who also appeared on the program, told the group that "most of the troublesome weeds in this area were brought here by man."

"Bindweed is undoubtedly the number one weed nuisance in the state," he said. "It lowers the value

of land by \$40 to \$50 per acre wherever it becomes established."

Walter Baxter, Jr., of Walter Baxter Seed Co., Weslaco, Texas, served as moderator for a forum on management and sales. He also described several methods which he uses for promoting good will with all members of the farmer's family.

Dr. J. E. Adams, new dean of the college's School of Agriculture, and former head of the Agronomy Department, welcomed the group to the campus.

George Brown Named Manager of Pennsalt Plant in New Jersey

PHILADELPHIA—R. R. Hull, general manager of the Pennsylvania Salt Manufacturing Co.'s I. P. Thomas Division has announced the appointment of George Brown as manager of the Paulsboro (N.J.) plant, effective Aug. 1.

This unit produces commercial fertilizers, phosphoric and sulfuric acids and water conditioning chemicals.

Mr. Brown, a native Philadelphian, is presently assigned to Pennsalt's Industrial Chemicals Division as assistant to the manager of manufacturing. He joined the company in 1953 following a six-year association with the American Viscose Corp. In the latter organization, he served as assistant manufacturing superintendent of the company's Lewistown, Pa., plant.

An alumnus of Girard College, Mr. Brown completed his undergraduate training in chemical engineering with honors at the Drexel Institute of Technology in 1943, where he also taught briefly. He earned the M.S. in Ch.E. degree at MIT in 1947 after three years' service as a navy lieutenant assigned to submarine service in the Pacific. With his wife Elaine and son Tommie, he lives at 309 Kent Road, Springfield, Delaware County.

NEW SOIL DISTRICT

WALDEN, COL.—The 100th soil conservation district in Colorado has been organized in Walden. It will be known as the North Park Soil Conservation District.

INSECT, PLANT DISEASE NOTES

Mites, Beetles, Aphids, 'Hoppers Reported in East

COLLEGE PARK, MD.—Grasshopper nymphs continue to be abundant in pastures and hay fields in central Maryland and light to moderate damage by Japanese beetles to soybeans was noticed on the Eastern Shore. Spider mites were quite heavy in one soybean field in Dorchester County; light in others.

Damage to whorls, tassels and ears of sweet corn by the corn earworm is evident in most sections. Sap beetles are abundant in sweet corn, particularly where damage has been done by the corn earworm.

Hornworms are light on tomatoes on the shore. Tomato russet mite has not been found or reported to date.

Tobacco fields, particularly the early plantings, should be examined frequently for aphids. Around the time of the last cultivation in some fields aphids are already established. If the tobacco leaves are slick or "greasy" from honey dew, it is time to dust and prevent a heavy increase of aphids.

Japanese beetles continue to damage roses and other ornamentals in Montgomery and Prince George's Counties, and webworms are quite bad on mimosa in most sections. Bagworms are doing damage to arbor vitae and other evergreens.—Theo. L. Bissell and Wallace C. Harding.

Bollworms and Lygus Bugs Abound in Arizona

PHOENIX, ARIZ.—Heavy to light showers have fallen in most of the cotton areas of Arizona during the past few days. In some instances, the heavy showers, followed by extremely warm days, have caused considerable shedding of small bolls. Many farmers have become alarmed, but it is a natural occurrence during these weather conditions.

Maricopa County's assistant county agent Carter reports that Lygus and bollworms are the number one pests in cotton with counts ranging from 10 to 25 in the spots he visited. Mr. Stevenson and workers of the Bureau of Entomology found Lygus counts as follows: Buckeye 17; Palo Verde 9; Perryville 13; Avondale 13; Mesa 9; Chandler 8, and Gilbert 5. This was an average for 100 sweeps of the bug net in the field. Both men report large acreages being dusted for control of these insects. Bollworms are very numerous in cotton fields and controls are in progress. Some fields show mites, leafhoppers, Salt Marsh caterpillars, white flies and stink bugs.

Graham County agent Sears and J. N. Roney found Lygus, black fleahoppers and bollworms to be prevalent in both long and short staple cotton fields in Graham County. Other reports indicate that Lygus counts range from 1 to 10 per 100 sweeps and that bollworms, beet armyworms and cabbage loopers continue to be found in aggravative numbers. Some insecticides are being applied.—J. N. Roney.

'Hopper Populations on Increase, Kansas Reports

MANHATTAN, KAN.—An increase in crop damage resulting from grasshopper feeding was observed in many localized areas in Riley, Pottawatomie, Marshall, Nemaha, Jackson, Jefferson, Wabaunsee, Shawnee, Morris, Dickinson, and Geary counties. Light to severe infestations were found in fields of alfalfa, corn, soybeans, pasture, and home gardens.

Although populations are now generally dispersed throughout entire fields, concentrations of grasshopper nymphs are still found

in fence rows and roadside ditches in many areas of the state. Counts ranged from 3 to 36 per sq. yd. Control measures are still required in many alfalfa fields and along field margins of corn and soybeans where heavy grasshopper populations exist. Grasshopper eggs, probably those of the lesser migratory species, were found in one field in Riley County.

Light to moderate chinch bug infestations were found in several fields of corn and milo in Marshall, Nemaha, Jackson, Jefferson, Shawnee, Wabaunsee, Pottawatomie, Riley, Dickinson, and Morris counties. In general, plants are now reaching stages of growth that are not nearly as susceptible to insect injury.

No yellow clover aphids were found on alfalfa in any of the fields that were surveyed in Marshall, Nemaha, Jefferson, Jackson, and Pottawatomie counties. These aphids were found in alfalfa fields of Morris County in central Kansas. Counts ranged below 10 aphids per sweep. No reports of heavy infestations were received during the week ending July 22.

Light infestations of European corn borer larvae were found in fields of field corn in Marshall, Nemaha, Jefferson, Jackson, and Shawnee counties. Infestations ranged from 1 to 16% with an average of 2 larvae per infested stalk. In Jackson, Nemaha, Jefferson, and Shawnee counties, about 80% of the larvae had pupated and of these, 40% had emerged. No egg masses were found in any of the fields examined. No broken tassels were observed in any of the corn fields that were surveyed. Infestations were found only in the early planted fields and no infestations were found in fields that had not tasseled.

One field infested with Southwestern corn borer (8% of stalks infested) was found in Morris County, central Kansas. Two pupae and one larva, probably southwestern corn borer, *D. grandiosella* were collected in this field.

An extensive survey of corn fields near Halstead, Harvey County, showed 28-30% infestations of first-brood southwestern corn borer. There was an average of 12% "deadheart" injury to plants. Dissection of many plants gave the following data:

8% of borers in larval stage; 92% of larvae have pupated, with a 20% emergence. Moths are laying eggs for the second brood; however, only a few egg masses were found (not more than 3 egg masses per plant).

Light infestations of common stalk borer in corn were found in Nemaha and Jackson counties. Infestations were confined to about 4% of the plants in the field margin next to weedy fence rows.

Corn leaf aphid infestations continue to build up in sorghum throughout most of the state. Light to heavy infestations were observed in several fields of Riley, Marshall, Nemaha, Jefferson, Jackson, Shawnee, Pottawatomie, Wabaunsee, and Morris counties.

Corn leaf aphid populations are building up in most of the sorghum fields in southwest Kansas. Infestations range from moderate to heavy in a few localized fields. Plants are showing characteristic bronze discoloration resulting from insect damage.

False wireworm beetles were observed in a field of central Morris County. This is probably the eastern limit of distribution of this species in Kansas. Corn sap beetles were working in tips of ears of field corn damaged by earworm larvae in some fields of Shawnee County. Counts

ranged from 4 to 8% of the ears infested.

Corn rootworm beetles were found in nearly all corn fields that were surveyed in Riley, Marshall, Nemaha, Jackson, Jefferson, Shawnee, Pottawatomie, Wabaunsee, Morris, Washington, Republic, Jewell, and Phillips counties. A near 100% emergence was recorded for northern species and the western species. West of Belleville, Republic County, the western species was the most prevalent. East of Belleville the northern and southern species were predominant.

A light infestation of fall armyworm was reported from near Lyndon, Osage County; however, no infestations were found in any of the fields that were surveyed in the following counties: Riley, Marshall, Nemaha, Jackson, Jefferson, Shawnee, Pottawatomie, Wabaunsee, and Morris. The infestation reported occurred in field corn.

Near Asherville and Beloit, Mitchell County, a few corn fields were found with infestations of fall armyworms (4th instar to adults) that ranged from 10 to 15% of the plants.

Light to moderate infestations of blister beetles were observed in nearly all alfalfa fields that were surveyed in north central Kansas counties. Counts ranged from 2 to 7 per sweep. A report from Dickinson County indicated an infestation that was destroying blossoms in an alfalfa field being grown for seed.—David L. Matthew.

Crop Damage Continues From 'Hoppers in Missouri

COLUMBIA, MO.—Grasshopper damage continues over most of the state. Both the differential and two-striped species are now largely adults, and the second generations of red-legged and Mexican have already hatched.

Some fungus disease has started showing up. Most of what we have found thus far has been in the northwestern part of the state, but if hot and very humid weather continues, it could show in other places.

Scattered fields of both late corn and soybeans are being damaged by webworms. This is the same webworm that worked alfalfa so hard last summer. Blister beetles have been stripping some fields of soybeans. This is another insect that can do a lot of damage in a short while.

In southeast Missouri, we noticed a good many fields of alfalfa being damaged by leafhoppers. These fields all were showing the typical yellowing of "hopper-burn." In most of these fields, there were also heavy populations of tarnished plant bugs.

Fleahoppers on cotton are more numerous than in most years and about one out of each 5-6 fields of early cotton checked was infested heavily enough to justify spraying.—Stirling Kyd and Geo. W. Thomas.

Boll Weevil Warning Goes Out in Southern States

MEMPHIS, TENN.—There is a critical build-up of boll weevils now evident in most parts of the Cotton Belt, with severe damage to squares and young bolls being reported in North Carolina, Arkansas, South Carolina, Louisiana, Mississippi, Texas, Oklahoma and Georgia. An official report from the Mississippi Extension Service stated:

"Boll weevils definitely are on the increase. General showers are bringing out second generation weevils in heavy numbers. Infestation counts as

high as 75% are reported in the south delta."

Similar reports from other Belt states have been received by the National Cotton Council's Memphis office. Farmers are being urged to keep an especially close watch on fields for the next two weeks and to apply insecticides when needed.

Recent rainy weather, followed by mild cloudy days, has provided a highly favorable climate for those weevils now emerging from grubs within cotton squares, Dr. H. G. Johnston, Council entomologist, says.

"Wet ground, overcast skies and an abundant food supply will cause rapid development at a most crucial time in the growing season," he added. The recent flare-up has revealed in Georgia that treated fields are infested at an average rate of only 3%, compared with 18% in untreated fields.

Insect Roundup Shows Numerous Pests in N. Mexico

STATE COLLEGE, N.M.—Lygus bugs are building up in cotton, but have not been reported in damaging numbers. Most fields in Dona Ana County have from 5 to 10 adults per 100 sweeps. Superb plant bugs are very light in cotton in Dona Ana County averaging only 1 per 100 sweeps. Stink bugs are also scarce in cotton, 1 per 100 sweeps, in Dona Ana County. A light infestation of Say's stink bugs is reported on barley in Torrance County.

Black cotton fleahoppers are being swept from cotton in Dona Ana County at the rate of 5 to 10 per 100 sweeps. Bollworms are still light in cotton in Dona Ana County, but large populations are present in some alfalfa fields. Yellow clover aphid infestations in alfalfa are generally light in the Mesilla Valley and in Torrance County. Infestations are spotty with in the fields.

Pea aphids are very heavy in alfalfa in Torrance, Santa Fe and Rio Arriba Counties, and Leafminers are being reported in cantaloupe in Dona Ana County. Mexican bean beetles are causing damage to beans in Rio Arriba County.

Gray blister beetles were reported as being very heavy in alfalfa in Rio Arriba County, but Woolly aphids are light in peach and apple orchards in Rio Arriba County. Spider mites are reported as heavy in most orchards, peach, apple and apricot, in Espanola Valley, Rio Arriba County.

Potato psyllid adults are present in small numbers in potato fields in Santa Fe County. Thrips are still very abundant on onions in the Mesilla Valley. Many growers are treating with insecticides, but infestation is fairly rapid.

Grasshoppers are causing damage to cultivated crops on 5,000 acres in Mora County and approximately 30,000 acres in Rio Arriba County. Reports of damage to range land are becoming fewer.—John Durkin.

Grasshoppers Reported Moving into Cornfields

AMES, IOWA—Grasshoppers continue to move into corn, soybean and garden. Red-legged hopper are still hatching at Ames. Mites are present on wing pads and wings of hoppers, but these will not affect population.

European corn borer moths continue to emerge, but few second brood eggs can be found. (One egg mass at Ankeny July 22.) Late beetle adults and larvae and aphid lions are abundant in corn fields. These can and do eat corn borer eggs. Spraying of late sweet corn for second brood may begin next week (at 20 egg masses per 100 plants).

Garden webworm moths are flying over most of the state. The de-

green, active may attack alfalfa. In corn, hoppers, damage in watched field.

Red spider mites on evergreens, elm and apple. Dusty, gray-brown other deciduous mottled leaves, appearance.

Other miscellaneous in the Iowa region caterpillars which eat walnut leaves; in windbreaks in the Great American Redbanded leaf half grown and serious in some orchards. Defoliation in some orchards.

Big Populations of Corn Borer Faces

URBANA, ILL.—First corn borer from 0 to 20%. In the average is not yet possible. Redbanded leaf half grown and serious in some orchards. Defoliation in some orchards.

Potentially, with the large second-generation experienced in Illinois. Many have an average generation borers many fields plan 10 and 20 have per stalk. If these borers pupate, second-generation will be broken stalks largely by fall weather that may accentuate. With this potential from the second generation inevitable if not occurs.

Thus far grasshoppers are not noticed because of the lush crops. If growing less favorable, damage more apparent. Fleahoppers are migrating to soybeans and corn. Bagworms are noticeable, and repelling trees and shrubs. It is almost perfect control, but still possible.—H.

Louisiana's Bollworms Becoming More

BATON ROUGE, LA.—Weevil infestations throughout the state on adults have been reported with first generation weevil development. Conditions may be expected of the second generation. Control measures are hampered during frequent rain. Too muddy ground equipment.

An average infestation in 8 fields inspected is reported. Last week, infestation ranged from 21 fields, 11 to 50% in 25 fields.

Heavy infestation developing in the

the south
green, active web-spinning larvae
may attack alfalfa, clover and soy-
beans. In combination with grass-
hoppers, damage can be severe in
unwatched fields.

Red spider mites are building up
on evergreens, privet, honeysuckle,
elm and apple. Evergreens have a
dusty, gray-brown cast, elm and
other deciduous plants have
mottled leaves, also with a dusty
appearance.

Other miscellaneous insects noted
in the Iowa report include Datana
caterpillars which are damaging
walnut leaves; bagworms on cedar
in windbreaks in southern Iowa; and
the Great American Elm sawfly is
damaging willow near Ames.
Redbanded leaf roller larvae are
half grown and red spider mites are
serious in some orchards. Grasshop-
pers are defoliating apple trees in
some orchards.—Harold Gunderson.

Big Population of Corn Borer Faces Illinois

URBANA, ILL.—Pupation of the
first corn borer generation varies
from 0 to 20%. In all fields examined
throughout the heavily infested areas,
the average is about 10%. A few
moths have already emerged. It is
not yet possible to determine what
percent of first-generation borers
will pupate and emerge as moths to
deposit eggs for a second generation.
Moth emergence and egg-laying may
occur, however, over a period of
several weeks.

Potentially, we may be faced
with the largest population of
second-generation corn borer yet
experienced in the north half of
Illinois. Many early-planted fields
have an average of five first-gen-
eration borers per stalk, while
many fields planted between May
10 and 20 have one or more borers
per stalk. If a high percentage of
these borers pupate and emerge as
moths, second-generation popula-
tions will be extremely serious.
The number of dropped ears and
broken stalks will be determined
largely by fall weather; winds or
wet weather that delay corn har-
vest may accentuate the damage.
With this potential, severe damage
from the second generation appears
inevitable if normal development
occurs.

Thus far grasshopper feeding has
gone unnoticed in most areas be-
cause of the luxuriant growth of
crops. If growing conditions become
less favorable, damage will become
more apparent. In addition, grass-
hoppers are migrating from hay crops
to soybeans and corn.

Bagworms are becoming quite no-
iceable, and reports of injury to
various trees and shrubs are com-
mon. It is almost too late to get
perfect control, but practical control
is still possible.—H. B. Petty.

Louisiana's Boll Weevils Becoming More Active

BATON ROUGE, LA.—Serious boll
weevil infestations have developed
throughout the state. Second gen-
eration adults have appeared in many
fields and there is now overlapping
with first generation adults. Weather
conditions have been ideal for boll
weevil development and heavy popu-
lations may be expected for the re-
mainder of the season.

Control measures have been seri-
ously hampered during the last week
of frequent rain. Most fields have
been too muddy for operation of
ground equipment.

An average infestation of 21% for
8 fields inspected in the Tallulah
area is reported as compared to
2% last week. In this area the
infestation ranged from 1 to 10%
in 21 fields, 11 to 25% in 50 fields,
26 to 50% in 25 fields and over 50%
in 2 fields.

Heavy infestations of bollworm are
developing in the upper Red River

valley. Most activity in the field and
catches in light traps have increased
markedly in all areas. Damaging in-
festations may be expected to develop
in all areas where weather conditions
have interfered with effective insecti-
cide applications.

Weather conditions have been
unfavorable for the development of
aphids and spider mites. Some in-
festations still persist at economic
levels in south and southwest
Louisiana.

Populations of rice stink bug are
slowly increasing in many fields of
early planted rice. Damaging infes-
tations are expected to develop by
mid August. General widespread in-
festations of the three-cornered al-
falfa hopper and tarnished plant bug,
continue in alfalfa in Bossier, Natchi-
toches and Red River parishes and
in white Dutch clover in Jefferson
Davis, St. Landry and Acadia par-
ishes.

Increased numbers of fall army-
worm moths were taken in light
traps during the week. Susceptible
crops should be inspected regularly
for infestations which may be ex-
pected to develop at any time during
the remainder of the season.—A. D.
Oliver.

College Professors Complete Study of Hercules Powder Co.

WILMINGTON—Three college pro-
fessors recently completed a five-
week study of Hercules Powder Co.
designed to acquaint them with the
day-to-day problems of running a
business enterprise.

They are Dr. L. Ross Cummins,
associate professor and chairman of
the Department of Education and
Psychology, Bates College, Lewiston,
Maine; Dr. Victor L. Jepsen, pro-
fessor of business administration,
Fresno (Cal.) State College, and Dr.
Willys R. Knight, professor and chair-
man, Division of Economics, Finance
and Statistics, School of Business
Administration, University of Georgia,
Atlanta.

The three professors are studying
the company under fellowships pro-
vided by Hercules in cooperation with
the Foundation for Economic Educa-
tion. The professors were part of a
group of 109 from the faculties of
92 colleges and universities chosen by
the Foundation for these fellowships
granted by 70 companies. Over 500
educators applied for fellowships.

Clean Grain Group Formed in Texas

FT. WORTH, TEXAS—A Texas
Quality & Clean Grain Committee
has been formed here with W. N.
Williamson of the extension service,
Texas A&M College, College Station,
as chairman of the group.

Other members of the committee
will be drawn from the following
fields: grain and milling trade, Fish
& Wildlife Service, Food & Drug
Administration, State Agriculture
Stabilization Committee, Commodity
Stabilization Service at Dallas, the
building trades, Texas A&M Experi-
mental Station, Rice Assn., farmers
organizations, Texas Wheat Pro-
ducers Assn., transportation industry
and the pest and insect control com-
panies.

The committee will have as its
goals to disseminate information per-
taining to clean grain, to encourage
action at county level, to acquire
necessary information for distribu-
tion, to encourage needed research
and to present field demonstrations.

Senior Engineer Named

ST. LOUIS—The appointment of
Karl H. Rothe of St. Louis as a
senior engineer in the design section
of Monsanto Chemical Co.'s Research
and Engineering Division, was an-
nounced here recently.

Team up your fertilizers with...

Fertilizer Borate *high- grade*

THE
LOW-COST
EQUIVALENT
OF BORAX
FOR
AGRICULTURE

MANUFACTURERS! DEALERS!

*Borate your
fertilizers...*

FOR INCREASED SALES
AND BETTER CROPS!

Specially developed for the Fertilizer Trade

Here's borax at the lowest cost per unit
... it's FERTILIZER BORATE with higher
analysis and lower unit cost. The high
boron content of this product is readily
available in a form ideally suited to agri-
cultural requirements. You'll blend the
FINE MESH with other plant foods for
borated fertilizers and offer the COARSE
MESH for direct applications.

You save on costs of storage, handling and transportation

FERTILIZER BORATE—High Grade, be-
cause of its higher analysis ... and lower
moisture content (5 mols) ... saves you
important money. In formulating mix-
tures containing borax, only 82.9 lbs. of
FERTILIZER BORATE—High Grade are re-
quired for each 100 lbs. of Borax that
you guarantee. You figure the savings!

Other Borates

you can offer for
specific needs

contains
13.6%
BORON

121%

44%

COLEMANITE—High Grade...a slowly
soluble lime borate for light and
porous soils, or in regions of high
rainfall. Content of B₂O₃ range
from 32% to 35%. Bulletin PF-2.

POLYBOR-2... Highly soluble. Con-
tains 20.5% Boron or 66% B₂O₃.
Applies as a spray or dust; compat-
ible with insecticides and fungicides
currently in use and may be applied
in the same solutions. Bulletin PF-4.

PACIFIC COAST BORAX CO.



AT SOUTHWESTERN CONFERENCE—Shown above at the Southwestern Fertilizer Conference and Grade Meeting, held in Galveston recently, are from left to right, back row, Dr. W. H. Garman, National Plant Food Institute, Washington; Floyd Prather, Central Texas Fertilizer, Comanche, Texas; Tom Wright, Texas Farm Products Co., Nacogdoches, Texas; Dr. J. R. Page, M. K. Thornton and Dr. James Hildreath, all from College Station, Texas; Dean Smith, Hi-Yield Fertilizer Co., Bonham, Texas, and Harold Trammell, Farmers Fertilizer Co., Texarkana; front row, B. L. Henderson, Campbell Fertilizer Co., Houston, president of the Texas Plant Food Educational Society; Sherman Clark, Texas Gulf Sulphur Co., Houston, vice president, and Dr. Niven Morgan, American Potash Institute, Shreveport, secretary.

Benefits of State Fertilizer Educational Societies Outlined At Southwestern Conference

GALVESTON—Three hundred fertilizer manufacturers, control officials and college men from the five southwestern states of Arkansas, Louisiana, New Mexico, Oklahoma and Texas met at the Buccaneer Hotel July 13-15 for their 29th annual Southwestern Fertilizer Conference and Grade Meeting.

The attendance broke all previous records. Aside from the routine business there was plenty of deep sea fishing, swimming, golfing, dancing and other recreation.

The afternoon of July 13 was set aside for registration with a social get-together in the evening.

A full program was presented during the morning of July 14. Stanley Hackett, president of Dixie Fertilizer Co., Shreveport, and chairman of the program committee, presided over the meeting. Roy Clough, mayor of Galveston, gave the welcome address.

Dr. R. L. Beacher, University of Arkansas, spoke on the ramifications of plant food educational society activities and potentialities. Dr. Beacher pointed out that a survey recently released by M. A. Anderson, TVA and Iowa Experiment Station cooperating, reports the relative importance of factors influencing farmer acceptance and use of fertilizer in Iowa.

Nearly 70% of Iowa farmers used fertilizer in 1952-53, and 87% of these believed that it had a beneficial effect—only 4% thought the effect harmful. Over half of these "users" credited neighbors, friends and other farmers as the cause of their initial fertilizer use; one fifth of them credited mass media (newspapers, magazines, etc.), leaving only a small percentage responding to the efforts of the dealers, salesmen, experiment station and extension service meetings, etc.

A surprisingly large proportion (63%) of farmers not using fertilizer believed that it had a beneficial effect; only 10% of these farmers believed the effect might be harmful. Obviously a majority of the farmers who are not now using fertilizer are aware of its value, and have a genuine interest in fertilizer use; this awareness and interest has been brought about by mass media, Dr. Beacher pointed out.

Dr. Beacher gave four reasons why state fertilizer educational societies composed of members of the fertilizer industry and the universities are beneficial. They are:

(1) Considerably improved relationships among competitors. This would be significant achievement in itself in some areas.

(2) A desirable shift of emphasis on some phases of extension and research work, toward more effective extension methods and more applicable soil and fertilizer research. Some state organizations have pushed hard on the demonstration plot technique, and contests among farmers (Georgia, Oklahoma, etc.).

Probably these methods constitute one of the most effective approaches available to arouse farmer interest and encourage acceptance of fertilizer practices on a local level. They keep county agent interest aroused, and may often directly lead to revisions in stagnant research projects at experiment stations. Local educational groups can see that results of such demonstrations are made available to wider areas.

(3) These groups can make available research information in simple forms more appealing and better understood by farmers. Every experiment station has reams of useful information on fertilizer use, possibly covered up in masses of technical or general bulletins of occasional interest and essential for the research worker, but seldom read or understood by the local farm leader let alone the majority of farmers. In many cases the extension services do not have funds or manpower to dig it out.

Plant food societies can instigate a little prodding, in some cases provide necessary funds to get such information put on posters or small pamphlets in simple terms to reach the small farm leaders on the center square, post offices, banks, farm supply stores or over radio and TV. Mass media packs a big wallop if presented in the right places in simple terms.

(4) Finally, active state groups can help crack open some of the hard shells still dragging along in the fertilizer industry and some



AT SOUTHWESTERN CONFERENCE—The photos above were taken at the ninth annual Southwestern Fertilizer Conference and Grade Meeting held recently in Galveston. Shown in the pictures, all from left to right, are:

First row—left photo, Bill Threadgill, Spencer Chemical Co., Memphis; W. S. Tyler, Longhorn Construction Co., Sulphur Springs, Texas; Gedy Gayle, Kelly Weber & Co., Lake Charles, La.; Warner Anthony, Farm Service Inc., Opelousas, La., and Ed Hubbard, Spencer Chemical Co., Memphis; right photo, Jud Drewry and Clair Dyer, International Minerals & Chemical Corp., and Bill Dunklin, Planters Fertilizer & Soybean Co., Pine Bluff, Ark., president of the Arkansas Educational Plant Food Society.

Second row—left photo, Sheldon Appleton, Potash Company of America, Shreveport, La., and James Powledge, manager of Buccaneer Hotel and secretary of Southwestern Fertilizer Conference; center, Dr. Russell Coleman, executive vice president of the National Plant Food Institute, a conference speaker; right photo, Mr. and Mrs. Gerald Wakefield, Olin Mathieson Chemical Corp., Little Rock.

Third row—left photo, Dr. M. B. Sturgis, Louisiana State University; Dave Van Aken, Spencer Chemical Co., Kansas City, and Rex Morgan, Ark. Plant Food Co., Corning, Ark.; right photo, at the dance, Harold Trammell, Farmers Fertilizer Co., Texarkana, Mr. and Mrs. Arnold Neumann, Red Star Fertilizer Co., Sulphur Springs, Texas, and Mr. and Mrs. W. S. Tyler, Longhorn Construction Co., Sulphur Springs.

Fourth row—left photo, Harold Hamby, Chilean Nitrate Sales Corp., Shreveport, Ivan Gilmore, El Dorado (Ark.) Fertilizer Co., Dr. Niven Morgan, American Potash Institute, Shreveport, and Joe Marsalls, Chilean Nitrate Sales Corp., Athens, Ga.; right photo, Jack Lindsey, S. B. McCoy and Clair Dyer, all with International Minerals & Chemical Corp.

Fifth row—left photo, Dr. R. L. Beacher, University of Arkansas, a convention speaker; photo, second from left, Stanley Hackett, Dixie Fertilizer Co., Inc., Shreveport, Dr. J. F. Fudge, Texas state chemist, and Dr. D. Hinkle, University of Arkansas; second photo from right, Park A. Yeates, Oklahoma control official who was a convention speaker; right photo, R. Ludwick, New Mexico control official addressing the convention.

state or local agencies. If we are ever to accomplish what we hope for the good of our soils and the future of the industry, we will need more open-minded willingness to change, Dr. Beacher said.

Too-rapid changes can certainly be temporarily disastrous, but resistance to change has held up industry as well as it has many farmers. New advances are coming rapidly—ques-

tions are popping faster all along, becoming more difficult to answer. Some farmers are expensively tempted to answer their own questions by trial and error because they haven't been able to get a good answer from any source. Many farmers are getting different answers from every source, and losing interest as a result.

Dr. Russell Coleman, executive vice president of the National Plant Food Institute, is a convention speaker.

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Food Institute, spoke on future probable trends of fertilizer consumption, farmer income and the ratio of mixed grades to materials. Dr. R. C. S. Young, originally from Scotland and presently with the University of Georgia, gave a dynamic and soul reaching talk on "Why I am an American."

The afternoon of July 14 was divided into a social, luncheon and card game for the ladies and a golf tournament for the men. The evening followed with social hour, banquet and dance.

Control officials appearing before the fertilizer manufacturers at the July 15 grade meeting were Dr. D. A. Hinkle, Fayetteville, Ark.; Dr. M. B. Sturgis, Baton Rouge, La.; R. W. Ludwick, College Station, N.M.; Park Yeats, Oklahoma City, and Dr. J. F. Fudge, College Station, Texas.

It was resolved that the meeting would be held in 1956 at the Buccaneer Hotel, Galveston, Texas, July 18-20. Stanley Hackett, Dixie Fertilizer Co., Shreveport, was appointed to serve as chairman of the 1956 program committee and the following were selected to serve with him: W. S. Tyler, Longhorn Construction Co., Sulphur Springs, Texas; Don Miller, Armour Fertilizer Works, Houston, Texas; Harold Trammell, Farmers Fertilizer Co., Texarkana, Texas, and Jack Lindsey, International Minerals & Chemical Corp., Shreveport, La.

During the course of the Southwestern Fertilizer Conference, the Arkansas Plant Food Educational Society and the Texas Plant Food Educational Society had separate meetings to project future plans.

Officers and directors meeting with the Arkansas Plant Food Educational Society were Bill Dunklin of Planters Fertilizer & Soybean Co., Pine Bluff, Ark., president; R. M. Morehead of Olin Mathieson Chemical Corp., Little Rock, Ark., vice president, and Lloyd Dhanan of Arkansas Plant Food Co., North Little Rock, secretary treasurer. Directors attending were Rex Morgan, Ark-Mo Plant Food Co., Corning, Ark.; Z. H. Calhoun, the Southern Cotton Oil Co., Little Rock, and Douglas Kelly, Jr., Lion Oil Co., El Dorado, Ark.

Officers of the Texas Plant Food Educational Society are: B. D. Henderson, Campbell Fertilizer Co., Houston, president; Sherman Clark, Texas Gulf Sulphur Co., Houston, vice president, and Dr. Niven Morgan, American Potash Institute, Shreveport, secretary.

The Texas Educational Society resolved to support the extension service in helping the county agents to develop a general program of soil improvement, help the National Plant Food Institute prepare and distribute a leaflet on the economics of fertilizing the crops of Texas, and to promote the art work of the Texas Extension Service showing good fertility practices on company calendars or other advertising media.

Aerial Dusting School To Open in October

COLLEGE STATION, TEXAS — Beginning Oct. 31, the first extensive course in aerial crop-dusting in the nation opens here for a term of six weeks. The course is being sponsored jointly by Texas Aerial Applicators Assn., Civil Aeronautics Administration and Texas A&M College.

MECHANIZATION CONFERENCE
EAST LANSING, MICH.—A quarter of a million persons are expected to attend the Farm and Home Mechanization Conference at Michigan State College here Aug. 15-20. Officials of the college report that the story of farm and home mechanization during the last 100 years will be told in the most complete assembly of farm and home equipment ever made in this country.

Water-Soluble Insecticides Tested For Mosquito Control

WASHINGTON — Research with water-soluble insecticides is offering real hope for the control of mosquitoes that breed in irrigation water, the U.S. Department of Agriculture reports.

Laboratory studies at USDA's Entomology Research Station, Orlando, Fla., indicate that dilute water solutions of several organic phosphate insecticides will effectively destroy mosquito larvae, and preliminary results from field-scale tests thus far substantiate laboratory findings.

Field experiments are being carried out this summer in irrigated rice at Stuttgart, Ark., and in irrigated pastures at Central, Cal., under direction of entomologist J. B. Gahan, of USDA's Agricultural Research Service. The Rice Branch Experiment Station at Stuttgart, the University of Arkansas and the Bureau of Vector Control of California's State Department of Health are cooperating in this research.

Water Table Drops In Portales Valley

PORTALES, N.M. — The water table in some parts of the Portales Valley has dropped, according to an announcement from Douglas McKay, secretary of the interior.

The first measurements on underground water levels were started in 1932 and checked regularly. By 1955 the water had dropped 34 ft. in one area of nearly five square miles. In another small area the drop was more than 20 ft. during the last five years.

The only bright spot in the report was that water losses were much less from 1953 to 1954 than during the previous years. This was partly due, the secretary said, to heavier than usual rains which reduced pumping of the wells.

The Portales Valley is the oldest irrigated area in Eastern New Mexico. Farmers first started using the shallow well water nearly 30 years ago, but heavy pumping did not start until just before World War II.

Texas Counties to Vote On Pink Bollworm Control

ALICE, TEXAS—Four South Texas counties are to hold an election to determine if cotton growers want to participate in a pink bollworm control escrow program. If a majority of farmers approve the program, a fee of \$7.50 will be held out of each bale produced and placed in the escrow fund. The purpose of the program is to assure complete cooperation with the cotton stalk destruction law provisions.

The four counties in which elections are to be held are Cameron, Hidalgo, Starr and Willacy, according to an announcement from John White, agriculture commissioner.

Infestation Reported in Non-Poisoned Fields

HARLINGEN, TEXAS—In fields where farmers did not take the precaution of poisoning against bollweevils and pink bollworm, severe infestation is reported, according to James A. Deer, associate tri-county farm agent. Severe losses, particularly to late cotton, have resulted.

He repeated a warning made earlier that farmers should defoliate their cotton to reduce insects and at the same time improve harvesting conditions. He reported some increase in aphid infestation but no substantial increase in cabbage looper infestation in the Rio Grande Valley.

California Department Of Agriculture Has Foreign Visitors

SACRAMENTO—Five representatives of foreign countries who are making a tour of the U.S. to study pest control methods visited the California Department of Agriculture recently.

They are Dr. Tashkir Ahmad of Pakistan, Eduardo Freitas of Paraguay, Habibollah Nassr of Iran, Abdolmajid Omidvar of Iran, and Honesto R. Mercado of the Philippines.

Most of the group were especially interested in locust control. Dr. Ahmad said that the Food and Agriculture Organization of the United Nations, with technical assistance from the U.S. Department of Agriculture, is conducting a joint operation in Southeastern Asia and parts of Africa in an effort to control this traditional pest in that part of the world.

Mr. Mercado told of his government's efforts to control the giant African snail which was spread by the Japanese in their occupation of Pacific Islands as a source of food.

The visitors came to California under auspices of the State Department.

1954-55 Sales In South Carolina Decline

CLEMSON, S.C.—Fertilizer use in South Carolina during the fiscal year ended last June 30 totaled 928,715 tons, according to B. D. Cloaninger, head of the state Department of Fertilizer Inspection and Analysis. This is a slight reduction from the 936,558 tons sold during the previous fiscal year.

Included in the 1954-55 sales were 645,053 tons of mixed goods and 283,662 tons of materials. The leading grades were 3-9-9, 199,686 tons, and 4-10-6, 153,328 tons.

Profitable Rates of Nitrogen on Bermuda Shown in Texas Study

COLLEGE STATION, TEXAS — There is one most profitable rate of application of nitrogen to irrigated coastal bermuda grass under all price conditions, according to a study conducted by Texas A&M College.

The work was carried out by R. J. Hildreth, Department of Agricultural Economics and Sociology, and Flake L. Fisher and A. G. Caldwell, Department of Agronomy of Texas A&M.

The results indicate that the most profitable rate on Lufkin fine sandy loam varies from 360 lb. per acre when hay is \$15 per ton and nitrogen is 20¢ lb. to 921 lb. per acre when hay is \$50 per ton and nitrogen is 10¢ lb.

The return on investment in nitrogen decreases as the amount of nitrogen applied increases. An investment in 50 lb. nitrogen returns \$3.08 per dollar invested when no nitrogen has been applied previously and hay is \$20 per ton and nitrogen 13¢ lb. When 600 lb. nitrogen has been applied, an investment in an extra 50 lb. returns \$1.23 per \$1 invested.

High levels of nitrogen application reduce fixed costs of hay production. Irrigation costs per ton of forage may be reduced from \$40.70 when no nitrogen is applied to \$9.23 when 800 lb. nitrogen is applied.

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Reprints of Croplife's Feature

Bug of the Week

Twenty four of the insects described in Croplife's weekly feature, "Bug of the Week," have been reprinted into an attractive 8½ x 11 inch booklet for distribution to the trade. The price is 25c each in quantities up to 100; 20c each in quantities of 100-1,000, and 15c each in quantities over 1,000. Firms may have their names imprinted on the back cover at a moderate extra charge.

Included in the booklet are the following insects:

Alfalfa Weevil	Northern Corn Rootworm
Armyworm	Onion Thrip
Boll Weevil	Plum Curculio
Chinch Bug	Potato Leafhopper
Cotton Bollworm	Seed Corn Maggot
Cutworm	Sweetclover Weevil
Grasshopper	Tarnished Plant Bug
Imported Fire Ant	Tobacco Hornworm
Lawn Chinch Bug	Tomato Hornworm
Lygus Bug	Tuber Flea Beetle
Meadow Spittlebug	White Grub
Mosquito	Wireworm

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Minneapolis 1, Minnesota

LION-MONSANTO MERGER

(Continued from page 1)

fixed the record date of Aug. 5 for stockholders entitled to vote at the special meetings.

T. M. Martin, president of Lion, said that more than half of Lion's investment and earnings are chemicals.

"We are a large low-cost producer of nitrogenous chemicals—ammonia and its derivatives which are sold in the chemical and agricultural markets," Mr. Martin said. "Monsanto and its associated companies are substantial consumers of ammonia."

"Monsanto is also a large producer of phosphorus and has developed methods of combining phosphorus with ammonia resulting in concentrated fertilizers in both solid and liquid forms. It is believed that substantial markets for these fertilizers are growing. Monsanto manufactures herbicides and other agricultural chemicals which would complement Lion's activities in this field."

"Lion has a well-balanced and integrated oil producing, refining and distributing organization with a record of achievement and good management," Mr. Thomas said. "Its exploration department has been successful in recent years in adding to its oil and gas reserves."

"Other than fuel and power, more than one-half of Monsanto's raw materials are products which can be or are produced from petroleum fractions or natural gas. It is the belief of both organizations that this union will hasten a long range program of producing an increasing variety of chemical raw materials."

Lion Oil Co. has 3,090,915 shares of common stock outstanding, with sales of \$58,694,131 for the first six months of 1955. Monsanto has 15,851,901 shares of the new \$2 par common stock outstanding with sales of \$207,514,258 for the first six months of 1955.

As previously reported, Monsanto's earnings were \$16,409,680 or \$1.02 per share on the new \$2 par stock. Lion's earnings for the first six months were \$7,816,987 or \$2.53 per share. The combination of the two companies will represent total assets of about \$550,000,000.

The identity of the Lion organization will be continued if the merger is approved and it will be known as "Lion Oil Co., a division of Monsanto Chemical Co.," headed by T. M. Martin as president of the Lion division. T. M. Martin and T. H. Barton will become members of the Monsanto board.

Mr. Thomas also announced that



SEALING THE AGREEMENT—Following the merger announcement by Monsanto Chemical Co. and Lion Oil Co., Charles Allen Thomas (left), St. Louis, Monsanto president, and T. H. Barton, El Dorado, Ark., Lion board chairman, seal the agreement with a handshake. The meeting took place in the office of the Monsanto president.

the Monsanto board intends to supplement its regular quarterly cash dividends of 25¢ a share on the company's common stock with an annual stock dividend of 2%, provided business activity and the combined companies' profits continue at or near present levels. The first stock dividend would be payable prior to the current year's end, Mr. Thomas said.

The merger, if approved by the stockholders of both companies, will become effective Sept. 30.

The following financial facts are taken from annual reports of Monsanto Chemical Co. and Lion Oil Co. as of Dec. 31, 1954:

	Monsanto	Lion
Sales and other income	\$345,155,242	\$ 98,988,206
Net earnings (income)	23,700,510	11,071,426
Shares of common stock outstanding	5,270,051*	3,090,912
Net earnings per share	4.39	3.53
Number of common shareholders	24,222	16,807
Total dividends paid	13,870,175	6,181,794
Dividends per share (common)	2.50	2.00
Net working capital	92,144,492	23,787,585
Current ratio (12/31/54)	3.7 to 1	2.98 to 1
Net properties (fixed assets)	209,515,035	109,071,543
Net worth	235,237,598	101,135,922
Number of employees	14,884	2,992
Annual payroll (year 1954)	77,768,562	14,865,861
Total assets	\$376,516,163	\$147,648,468

*Giving effect to 3 for 1 split on July 11, 1955, becomes 15,810,163 shares of \$2 par value.

ANHYDROUS USE

(Continued from page 1)

the January-May period. In all, the AAI received reports from 54 distributors. Those who turned in incomplete reports were not included in the compilation.

The distributors indicated that the outlook for anhydrous ammonia sales during the balance of 1955 is encouraging. They saw it this way:

Excellent 3, good 25, fair 10, poor 4, no report 2.

Twenty-seven distributors reported that they had stepped up their sales promotion program during the period; 13 said their promotional work was about the same; two said they used less promotion, while 12 did not report.

In answer to the question of storage, 19 reported increases in tonnages from 10 to 125%, and 25 reported storage as being about the same as last year.

Greece, Egypt Ask Bids on Herbicides, Copper Sulfate

WASHINGTON—The Agricultural Bank of Greece wishes to purchase 300 tons of herbicides. The last day for bids is Aug. 13.

A copy of the bidding terms and specifications is available for review on loan from the Commercial Intelligence Division, Bureau of Foreign Commerce, U.S. Department of Commerce, Washington 25.

The Greek Foreign Trade Administration, which is located at 729 15th Street, N.W., Washington, will provide additional information and will give assistance to prospective bidders.

Egypt is in the market for 1,000 metric tons copper sulfate. Bids must be submitted by Aug. 6, through an agent established in Egypt, to the stores and supplies department of the Ministry of Public Health in Cairo, and must be accompanied by a provisional deposit of 2% of the contract.

The Commercial Intelligence Division in Washington also holds a copy of the specifications and bidding conditions.

Boll Weevils Building Up Rapidly in Mid-South States

MEMPHIS—Boll weevils are building up rapidly throughout Mississippi, while cotton and corn in West Tennessee are doing fine, according to reports of Extension Service officials.

Extension entomologist A. G. Bennett of Mississippi said weevils are causing heavy damage in some scattered "hot spots."

Farmers in areas where infestation is heavy are poisoning every three or four days for control.

Bollworms also are beginning to show up and farmers are advised to check the cotton closely for eggs and small worms. Areas reporting boll worms are located in the lower delta and hills section.

Cotton is making fast growth and is becoming too rank in some cases, said T. M. Waller, extension cotton specialist, who added that this is particularly true where insects or deep cultivation have caused shedding of fruit.

Corn is in good condition with a crop generally assured from the early planted acres. Later planted corn shows good prospects.

Watermelons are moving to market in volume from throughout central Mississippi, according to Chesley Hines, extension horticulturist.

Other truck crops now being marketed on local outlets include early crop sweet potatoes, peas, lima beans, peppers, cucumbers, okra and tomatoes. These crops are of top quality and are in ample supply, Mr. Hines said.

Pastures, truck crops and hay also are in good to excellent condition in West Tennessee, but there has been some boll weevil damage, especially where there has been abundant rain which washed off protective poisons, according to Judd Brooks, district agent.

"Most farmers are now predicting bumper crops of hay and corn and a number of dairy and beef cattle growers are increasing their purchases to bring herds up to the size they had two years ago."

"Many farmers are planning ditch silos for winter feed."

"Some sections of the district still are getting too much rain. Madison County has set a new record for rainfall for a 60-year period."

Ammonia Production Reported to Have Reached New Level

WASHINGTON — Production of synthetic ammonia reached another high of 296,799 tons in the month of May, 1955, it is reported by the Business and Defense Service Adm. of the U.S. Dept. of Commerce. This figure was some 10,000 tons over that reported for April, 1955 and 46,962 tons more than the amount reported for May, 1954.

Fertilizer grade ammonia nitrate production for May, 1955 topped that of the same month the previous year, but fell behind reported output for April, 1955. The tonnages were as follows: May, 1955, 135,265 tons; May, 1954, 129,904; and April, 1955, 148,259.

Synthetic ammonia sulfate production was reported to be 104,138 tons for May, 1955, as compared to 75,910 tons for the same month in 1954. April, 1955, had an output of 90,042 tons.

Production of phosphoric acid from phosphate rock amounted to 183,188 tons in May, 1955 as compared to 138,643 tons in the same period last year. In April, 1955, the total was 180,173 tons.



Paul L. Weller

Paul L. Weller Named Assistant to Spencer Vice President

KANSAS CITY—Paul L. Weller, manager of market research for Spencer Chemical Co., has been named assistant to Joe E. Culpepper, vice president in charge of sales, it was announced recently.

Mr. Weller has served as market research head since November, 1953, when he went with Spencer. Previous to that time he was for three years district sales manager of the Wyandotte Chemicals Corp. in Cincinnati, and was director of market research for the same company before going into sales. From 1942 to 1945, he was a senior development engineer for the Goodyear Tire and Rubber Co. in Akron.

A native of Cuyahoga Falls, Ohio, Mr. Weller was graduated from Ohio State University in 1935, and received a master's degree in business administration in 1938. He is married and the family has three children.

Firms Enter Two More Petitions For Tolerances

WASHINGTON—Two more petitions were filed with the Department of Health, Education and Welfare for establishment of tolerances for residues of pesticides.

American Cyanamid Co., New York, proposed tolerances for malathion (O,O-dimethyldithiophosphate of diethyl mercaptosuccinate) as follows:

Tolerances of 8 parts per million on apples, pears, avocados, blueberries, cranberries, strawberries, mangoes, peaches, apricots, guavas, cherries, plums and prunes, grapes, beans and peas.

Broccoli, brussels sprouts, rutabagas, turnips, beets, cucumbers, squash (summer), melons, eggplant, peppers, onions, potatoes, tomatoes, walnuts, pecans, citrus, dates and pineapple.

Celery, cauliflower, cabbage, mustard, kale, spinach, lettuce, barley, wheat, oats, alfalfa, clover, pasture grass and passion fruit.

Stauffer Chemical Co., also of New York, filed a petition requesting tolerance levels for residues of sulphenone when used on apples and peaches. The application asked for a residual tolerance of 15 ppm. for sulphenone P-(Chlorophenyl phenyl sulfone) on apples, pears and peaches.

The petition was filed in the Federal Register of July 27, 1955.

FIELD DAY

CLEMSON, S.C.—A coastal bermuda field day will be held Aug. 3 on the T. H. Ham farm between Darlington and Hartsville.

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Better Selling

A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW

Texas Dealer Uses Delivery Service, Works with Dusters to Build Volume

By RUEL McDANIEL
Croplife Special Writer

Around four or five o'clock the telephone on Cody Lentz's desk rings. When he answers he finds that at the other end of the line is one of several professional aerial crop-dusters with whom he cooperates to sell pesticides to farmers.

"That block we've been working on in Refugio County's all ready to go," the duster says. "Can you have the dust at the Boyles farm at five in the morning. . . .?"

Mr. Lentz checks details as to the number of acres in the block to be dusted, the exact spot where the poison is to be delivered, and another sizable sale has been completed.

This is typical of one way in which Lentz Feed & Seed Co., Victoria, Texas, successfully sells pesticides to farmers. The business is a major part of the company's over-all volume and the profit is worthwhile, Mr. Lentz declares.

He manufactures a sulphur-base dusting pesticide in his own plant, and he handles some dust and a lot of liquid from other manufacturers.

"We find that the best way for a comparatively small local outfit like ours to get business in face of competition, and in some cases where the price element is against us, is to do something for the farmer that he is not accustomed to getting from other firms," Mr. Lentz explains. "In our case it's service. That's a very generalized word of course; but it's the thing that has enabled us to build our pesticide business."

This cooperation with crop dusters in the general area of Victoria is one of the examples of what Mr. Lentz means by using service to build business. He calls on all professional aerial dusters in a territory within a radius of 75 miles of Victoria.

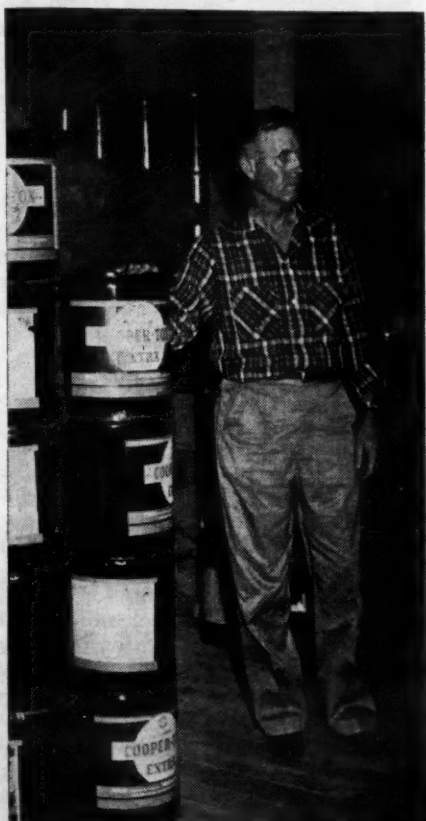
He sells them on his company's products and services, and then offers to work with them to set up "blocks" of farms for dusting and to deliver the poisons to the spot where the duster wants them. This delivery service right to the field, at the landing area from which the duster takes off and lands while dusting a block, is highly important in winning the help of dusters, Mr. Lentz finds.

This on-the-spot delivery saves the duster extra work and speeds up his job. That means more profit to him, and obviously he is anxious to cooperate with the dealer who makes this possible.

Lentz Feed & Seed Co. advertises its pesticides extensively during the more active crop-dusting seasons, and in all major advertisements in the newspapers the company lists the three crop-dusting concerns with which it works particularly close.

This statement is typical of how the company publicizes the dusters: "If your fields are wet and you can't use ground machinery . . . plane service is available." . . . Following that statement are the names, addresses and telephone numbers of three area dusting concerns which are working with the company.

The company recommends aerial application when the farmer uses



TEXAS DEALER—W. H. Crawford, store manager of the Lentz Feed & Seed Co., Victoria, Texas, is shown above as he prepares an order of pesticide to be hauled by truck to the landing field of crop dusting planes.

dust. Certain liquids may be successfully applied by airplane, and those that can be properly applied are known to the Lentz organization and recommendations are made accordingly. The Lentz firm recommends to the farmer what its experience and observation have proven to be the most economical, taking all factors into consideration.

Both Mr. Lentz's sales force and the dusters work together to form "blocks" in a given area for dusting. In other words, when a farmer wants to poison his cotton in Calhoun County, for example, the duster whom the farmer has contacted, either directly or through the Lentz organization, visits the farmer, looks over the area and gets the names of men owning adjacent cotton farms.

In many cases the first farmer helps the duster or the Lentz salesman contact the neighboring farmers and quickly the combination of selling forms a block of several hundred or even thousands of acres of cotton to be dusted in the same block.

This blocking cuts the cost of the service to the individual farmer, the duster makes more profit and the volume of business thus created for the Lentz organization justifies the extraordinary service rendered.

Dusting should be done early in the morning when full dew is on the plants, so Mr. Lentz offers to deliver the pesticide to the spot selected by the duster when it is wanted, even if it means that a driver and a helper must roll out of bed at three in the morning in order to have the poison on the site by five.

The Lentz men not only deliver the

merchandise to the site selected by the duster, but they also unload it and then help to load up planes for the first tour of dusting. The dusters appreciate this added service, since most of them are short-handed and the loading is difficult when handled with a short-handed crew.

Mr. Lentz suggests that dealers who plan to get more business from crop-dusters, particularly those serving cotton farmers, should use a good grade of sulphur finely ground, and a high grade of talc (clay); and this should be packed in bags with ripcord bottom, to ease the transfer of the pesticide into the plane hopper.

The Lentz organization of course does not limit its pesticide selling effort to customers using aerial dusting facilities. For farmers who wish to apply their own dust or liquid, the company has mechanical equipment for spreading the pesticides for lease at reasonable rates.

Many farmers are utilizing this service, particularly since the company delivers the equipment to the farm, along with the pesticides to be used.

The same delivery service is available to individual farmers who do their own work as to those using aerial dusting. To cut the cost delivery, the company frequently works out "block" deals with farmers who apply their own poisons, so that greater quantities may be delivered to the same general area.



SHOP TALK

OVER THE COUNTER

FOR THE DEALER

By EMMET J. HOFFMAN
Croplife Merchandising Editor

It is estimated that 90% of the total payments for goods in the U.S. are made by checks. It makes the volume of business done with currency appear very small.

To a dealer in farm chemicals, the matter of money and credit is most important. Most fortunes, it is said, are made with borrowed money. Borrowed money used wisely becomes a stepping stone to success. But credit out of control will destroy any person or business organization.

Business experts point out daily the need for close credit management in order to avoid the inevitable business failure. They say:

1. Trade conditions do not remain the same. Whether they move up or down, there is a point where they will turn abruptly. Therefore, the price of success depends upon gathering information and making proper credit decisions.

2. We are living in an age of decreasing margins of profits which does not allow for long-time credit. To earn a satisfactory profit on invested capital, the dealer must turn his stock rapidly and keep turning it. Dealers must be taught to take advantage of all cash discounts, to sell for cash and use extreme care in making credit sales. The dealer must collect his money promptly so he can buy and sell more merchandise.

3. Costs of doing business must be

given far more study and be controlled more efficiently in the future. Compensation of officers and personnel must be carefully administered; their earnings depend upon the earnings of the business. Profits will be reduced in direct ratio to credit losses and inactive capital, because there will then be a smaller amount of gross business out of which to pay overhead costs of doing business.

Some Ideas on Credit

Different people have different ideas as to what is a good credit risk. Bankers place great stress on financial standing. They want accurate

(Continued on page 11)

New Credit Plan Announced for Great Plains Area

WASHINGTON — A new credit program for farmers and ranchers in the Great Plains area, combining established real estate and production loan programs of the Farmers Home Administration with a greatly expanded emergency loan program, was announced recently by Ezra Taft Benson, secretary of agriculture.

The program is an outgrowth of recommendations made at the Great Plains Agricultural Conference called by Secretary Benson and held last May 31-June 2 in Denver.

In areas designated by the secretary of agriculture, loans will be made for reseeding and the establishment of grasslands and other approved conservation and land use practices including soil and water erosion control measures; development and improvement of domestic and irrigation water supplies, repair and improvement of existing farm buildings and the purchase of additional land needed to enlarge a farm to a family-type size.

Loans also may be made to purchase livestock, farm equipment, farm equipment repairs, seed, fertilizer, feed, insecticides, farm supplies and for payment of interest and taxes.

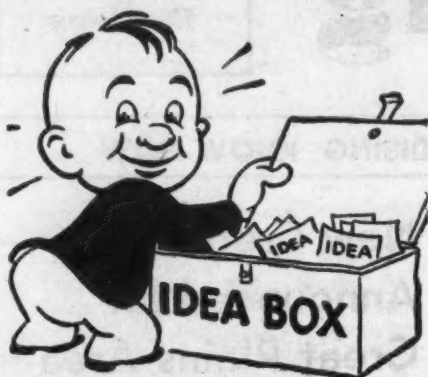
A Farm and Home Plan will be a part of the processing of each loan. It is not intended that loans shall be made prior to proper classification of the land involved, and the Farm and Home Plans will take into consideration such things as the type of farm-

(Continued on page 12)

Better Selling

Richer Sales Fields for Dealers

CROPLIFE, August 1, 1955—10



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6288—Steel Building

Development of a new "straight-wall" pre-fabricated steel building, featuring trussless construction, and designed to meet storage and warehousing needs of fertilizers and farm chemicals, is announced by the Engineering and Research division of the Wonder Building Corporation of America. It is claimed that the building can be erected in a matter of hours by as few as two workers using nut and bolt fasteners. Erection costs are said to average 30¢ per square foot and purchase costs are \$1.25 per square foot, for a complete building.



Company spokesmen say that the structure is designed to meet all building code requirements and will withstand wind velocities up to 125 miles per hour. Straight-wall construction facilitates mechanized materials handling procedures involving palletization or similar stacking operations. Walls rise vertically to a height of 9 feet before curving to form a semi-circular roof. The building shown is 48 ft. wide; others range from 30 to 50 ft. in width, and from 12 to 18 ft. in height. Secure more complete details by checking No. 6288 on the coupon and mailing it to this publication.

building code requirements and will withstand wind velocities up to 125 miles per hour. Straight-wall construction facilitates mechanized materials handling procedures involving palletization or similar stacking operations. Walls rise vertically to a height of 9 feet before curving to form a semi-circular roof. The building shown is 48 ft. wide; others range from 30 to 50 ft. in width, and from 12 to 18 ft. in height. Secure more complete details by checking No. 6288 on the coupon and mailing it to this publication.

No. 6276—Bagging System

New developments concerning its 9-in. single-screw feeder overhead and standard Richardson E-50 automatic scale system as used in one fertilizer plant are now available from the Richardson Scale Co. The installation referred to is at the Knoxville (Tenn.) Fertilizer Co. Richardson officials say that two men can now bag with acceptable accuracies as many as 15 hundred lb. bags per minute of the lightest fertilizer and 16½ hundred lb. bags per minute of

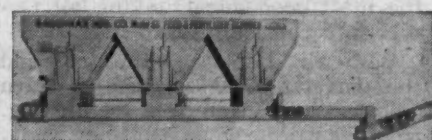
a slightly heavier product. Secure more complete details by checking No. 6276 on the coupon and mailing to Croplife.

No. 6282—Screen Bulletin

Publication of bulletin 243, a new eight-page, two-color bulletin describing the Symons V-Screen is announced by Nordberg Manufacturing Co. This screen is specifically designed for fine screening, for sizing, dewatering, dedusting, cleaning, and washing. The bulletin states that the screen does not depend on gravity alone for its screening action, combining centrifugal and gravitational forces. Details of construction and operation are given. Secure the bulletin by checking No. 6282 on the coupon and mailing it to this publication.

No. 5248—Blender

Automatic blending of feed or fertilizer in exact proportions is claimed for a new high speed batch or continuous mix blender introduced by Baughman Manufacturing Co. The blender, designated as model 55, can also be pre-set to deliver any quantity of feed or fertilizer desired, automatically signaling or shutting itself off when the specified amount has been delivered, without previously weighing the material, the



company states. The unit consists of three hoppers, each of 49 cu. ft. capacity, emptying by conveyor belt into a common auger-type conveyor tube, where the materials are mixed as they are conveyed to the customer's truck. Flow of ingredients from the hoppers is controlled by a gate which is set by a graduated scale to the required opening indicated by a blending chart mounted on the side of the unit. The blender can also be used as a batch mixer. The materials are weighed before being loaded into the hopper, the gates set and the mixing operation started, with all three hoppers emptying simultaneously. Special size units are also available. Secure more complete information by checking No. 5248 on the coupon and mailing it.

No. 5252—Stacker

A load handler called by the trade name, Grand Lift King, has been announced by the Allied Manufacturing & Sales Co. The unit is described as a streamlined fork or platform lift stacker powered by one or two batteries. Fourteen models with load

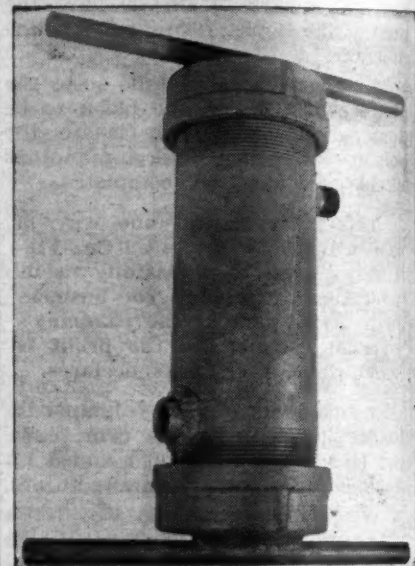
capacities of 750-3,000 lb. are available. Lifting heights range from 60-100 in. Full information may be obtained by checking No. 5252 on the coupon and mailing it.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6166—Spray Rig Filter

The Central Mine Supply Co. has designed and is manufacturing its new spray rig filter. Company spokesmen said that it is "designed for easy



cleaning, with a sediment bowl in its base... and uses an easy-to-replace sock type filter element." Prospective users and dealers may have more complete information without charge. Check No. 6166 on the coupon and mail it to Croplife.

No. 6289—Feeders

A 12-page technical bulletin entitled, "Continuous Proportioning Equipment for the Fertilizer Industry," has been published by the Omega Machine Co., division of B-I-F Industries, Inc. The bulletin was prepared by Andrew A. Melnychuk, project engineer. Sections are devoted to phosphoric acid production, superphosphate, triple superphosphate, continuous compounding of fertilizer mixtures, proportioning of coating agent to hygroscopic materials and a summary. Chemical feeding and proportioning problems are welcomed by the firm's engineering and laboratory staff, the bulletin states. To secure the bulletin check No. 6289 on the coupon and drop it in the mail.

No. 6280—Slide Film

A new slide film in sound and color titled, "Weed Control in Peanuts With Crag Herbicide-1," is now available.

This seven minute film is provided without charge by Crag Agricultural Chemicals, Carbide & Carbon Chemicals Co., a Division of Union Carbide and Carbon Corp. Check No. 6280 on the coupon and mail it to secure the film.

No. 5200—Weighing System

A technical reference, offered by Richardson Scale Co., describes and illustrates a weighing and handling system which utilizes a line of batch hoppers suspended from an elevated

monorail. Under of one operator matically tare multiple ingred conveyed to a charge. The r complete seq the weighing, cycles. One sec features, cover light indicators and the system Information on ing of tare, gro also included. T check No. 5200 mail it to this

No. 6165—Relief Valve

Details of h valves are use Corporation's c



handling nitrog announced. Th named Circle by James-Pon Seal announcer trogen or low to 'pad' or pr prevent boiling and permit ap sure. The relie tanks from ove increased vapor tanks are in th valve protects pressure gas r from the amm valve with a li a vacuum breal of the tank as the pressure d complete detai the coupon and

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The Granulit booklet entitled The product, A the booklet as taining the mir ese, sulphur, b zinc. Facts ab properties of trace element ments by user booklet. Dr. G sulting agronor foreword. Sec checking No. 6 dropping it in

No. 5225—Bagging

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Send me information on the items marked:

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| <input type="checkbox"/> No. 5225—Bagging Scale | <input type="checkbox"/> No. 6277—Weed Killer |
| <input type="checkbox"/> No. 5248—Blender | <input type="checkbox"/> No. 6280—Slide Film |
| <input type="checkbox"/> No. 5252—Stacker | <input type="checkbox"/> No. 6281—Applicator |
| <input type="checkbox"/> No. 6165—Valves | <input type="checkbox"/> No. 6282—Screen Bulletin |
| <input type="checkbox"/> No. 6166—Spray Rig Filter | <input type="checkbox"/> No. 6284—Booklet |
| <input type="checkbox"/> No. 6271—Pyrene Spray | <input type="checkbox"/> No. 6288—Steel Building |
| <input type="checkbox"/> No. 6272—Hose Pump | <input type="checkbox"/> No. 6289—Feeders |
| <input type="checkbox"/> No. 6275—Insect Applicator | <input type="checkbox"/> No. 6290—Pentasulfide |

NAME

COMPANY

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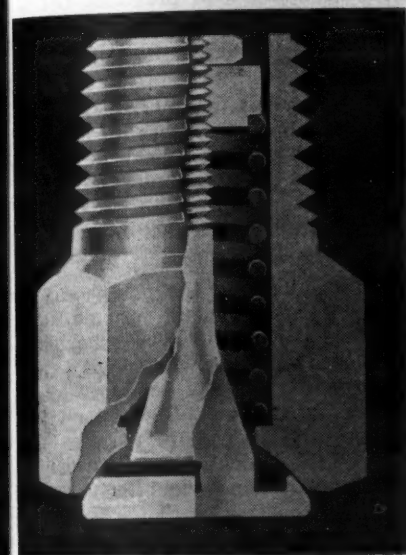
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monorail. Under the remote control of one operator, the hoppers are automatically tare weighed, filled with multiple ingredients, net weighed and conveyed to a delivery point for discharge. The reference outlines the complete sequence of operation for the weighing, indicating and delivery cycles. One section, discussing control features, covers such things as pilot light indicators, weigh selector dials and the system's servo mechanism. Information on the automatic recording of tare, gross and net weights is also included. To secure the reference check No. 5200 on the coupon and mail it to this publication.

No. 6165—Check, Relief Valves

Details of how check and relief valves are used in Brea Chemical Corporation's distribution tanks for



handling nitrogen solutions have been announced. The valves are trade named Circle Seal Precision valves by James-Pond-Clark. The Circle Seal announcement states that "Nitrogen or low pressure gas is used to 'pad' or pressurize the tanks to prevent boiling off of ammonia vapor and permit application under pressure. The relief valves protect the tanks from over pressure caused by increased vapor pressure where the tanks are in the sun. . . . The check valve protects the nitrogen or low pressure gas regulator from attack from the ammonia vapor." A check valve with a light spring is used as a vacuum breaker to permit flow out of the tank as the liquid is used and the pressure drops. To secure more complete details check No. 6165 on the coupon and mail it to Croplife.

No. 6284—Booklet

The Granulite Co. has published a booklet entitled, "Granulite Ag-Slag." The product, Ag-Slag, is described by the booklet as a liming material containing the minor elements: manganese, sulphur, boron, copper, iron and zinc. Facts about the product, the properties of calcium silicate slag, trace element composition and comments by users are included in the booklet. Dr. George N. Hoffer, consulting agronomist, is author of the foreword. Secure the booklet by checking No. 6284 on the coupon and dropping it in the mail.

No. 5225—Automatic Bagging Scale

Richardson Scale Co.'s E-50 automatic bagging scale is described and illustrated in the company's new 6-page bulletin No. 3749A. The scale was designed for high-speed bagging with consistent weighing accuracy, according to the manufacturer. It has a normal capacity range of 5 lb. to 25 lb. or 25 lb. to 50 lb. Both open-mouth paper or textile bags can be weighed and filled with the scale, the company says. The bulletin in-

cludes three suggested feeding arrangements for granular, powdered and pellet-size materials. Specifications and optional features are outlined in the bulletin and accessories as feeders, bagholders, sewing conveyors, sewing pedestals and packers are described. For a copy check No. 5225 on the coupon and drop it in the mail.

No. 6271—Pyrenone 606 Spray

A newly developed insecticide just announced by Niagara Chemical Division of Food Machinery and Chemical Corp. is Pyrenone 606 spray. This new spray is claimed to be non-poisonous and non-injurious to man, livestock and foodstuffs.

The product is an oil-free emulsifiable concentrate containing 60% piperonyl butoxide and 6% pyrethrum. When diluted with water, it can be used for the following: A liquid grain protectant, a fruit fly spray and as an industrial and livestock spray. It is recommended for food packers and canners where fruit flies and other insects are troublesome. Secure more details by checking No. 6271 on the coupon and dropping it in the mail.

No. 6290—Phosphorus Pentasulfide

The addition of phosphorus pentasulfide to the list of phosphorus derivatives available from Monsanto Chemical Company's inorganic chemicals division has been announced. The company's distilled phosphorus pentasulfide, made with pure electric furnace phosphorus, is being marketed as a greenish yellow granular powder. Typical analysis is 27.9% phosphorus, 72.0% sulfur, and a melting point of about 280° C., the firm reports. The P₂S₅ also can be made available in solid form. Powdered material is packed in 150-lb. and 325-lb. drums. Secure more details by checking No. 6290 on the coupon and mailing it to Croplife.

No. 6281—Applicator

The John Blue Co. announces that its new rigid shank applicator is designed for use in tough soils where deflection of applicator blades is a problem. The announcement states that "four types are available for use with tool bars of almost every size and description. Exclusive truss frame design gives maximum strength with minimum weight. The shanks are constructed of alloy, heat treated steel. . . . Another feature is claimed to be the clamp design which maintains the applicator in the correct running position. "Heavy duty bolts provide adequate strength for clamping on the tool bar and a shear pin on the applicator blade prevents damage in the event an obstruction is encountered," the announcement adds and secure more complete details by checking No. 6281 on the coupon and mailing it.

No. 6272—Hose Pump

New features of the Liberty liquid fertilizer hose pump introduced by the Liberty Manufacturing Co. have been announced. The Krause Plow Corp. has acquired exclusive manufacturing and sales rights to this application device. Production of the hose pump is licensed by the University of Tennessee Research Corp., whose engineers designed and patented it. Improvements in the pump have also been made by United States Department of Agriculture engineers at Beltsville, Md., who have been working with it for the past 18 months. The hose pump is a metering device which is said to

handle all types of fertilizer solutions, and is claimed to be accurate and free from stoppage troubles. Secure additional information by checking No. 6272 on the coupon and mailing it.

No. 6275—Insect Applicator

A new, 4-row, granular, insecticide applicator has been announced by the E. S. Gandrud Co., Inc. Called the Gandy Hi-or-Lo Spreaderette, the new applicator is designed to provide effective corn borer control over a



period of several weeks with one application. Adjustable to heights of 3 to 6 ft., the unit drops granular DDT into the corn whorl where leaves attach to stalk.

Company officials claim that the machine is capable of handling all granular insecticides including aldrin, dieldrin, chlordane, heptachlor, DDT and toxaphene, and permits effective control of cloverleaf weevils, chinch bugs, grasshoppers, army worms, sweet clover weevils, wire worms and spittle bugs, as well as corn borers. Check No. 6275 on the coupon, clip and mail it to Croplife to secure more details.

No. 6277—Weed Killer

A new, more concentrated, formulation of "Ammate" weed and brush killer has been announced by the Du Pont Co. Identified as "Ammate" X, the new formulation contains 95% of the active ingredient, ammonium sulfamate, instead of 80%. The new product is normally used at the rate of 60 lb. per 100 gal. of water instead of 75 lb. Containers for the new formulation are 60-lb. bags and 40-lb. fiber drums, corresponding to the previous 75-lb. and 50-lb. containers. It is recommended as a foliage spray for control of woody plants, and as a stump treatment to prevent resprouting. Check No. 6277 on the coupon and mail it to secure more complete information.

Fertilized Ranges Help Lamb Growth, Wool Growers Hear

SAN FRANCISCO — California raisers of lamb learned the advantages of applying chemical fertilizers to their rangelands at a recent convention of the California Wool Growers Assn.

Lambs can be ready for market earlier and will be fatter when they are permitted to graze on range lands which have been properly fertilized with nitrogen, according to W. E. Martin, soils specialist of the California Agricultural Extension Service.

Mr. Martin told the livestock men that ranges ready for grazing in December are generally possible in California's mild climate. Nitrogen will do the trick, he said. It isn't the cold that prevents the pasture from growing during the winter in much of California's rangeland, he said. It's lack of nitrogen.

"Nitrogen will give us winter growth," said Mr. Martin, "and we can have feed available in mid-December where we fertilize."

Better Selling

Richer Sales Fields for Dealers

OVER THE COUNTER

(Continued from page 9)

financial statements; they want to know how you pay your bills.

Manufacturers want financial statements, also, but because of the close relationship with the dealer, they take a little greater degree of chance on the dealer's character, capability, reputation, etc., in the past. They know that a good dealer of good character will usually make up in hard work, ideas, cooperation, loyalty and efficient merchandising what he may lack in work capital.

For a dealer to earn and merit a good credit reputation enjoyed by so many businessmen today requires years of honest dealings, attention to business, satisfactory handling of his accounts according to terms, and other similar factors.

To destroy that reputation may require but one day. One unwise financial move, carelessness, or false report can completely tear it down.

Facts Count in Credit

Mere opinions count for very little in determining a credit policy or the limit of credit to a customer. Facts are what count. That's what the manufacturer wants—that's what the dealer wants.

The man who approves credit for the manufacturer or the dealer is just as much interested in approving an order as the salesman who writes the order. He does not get paid for orders turned down but for profitable business which he helps in building up. Credit policies must go hand in hand with sales policies. Credit managers want to help the salesmen sell; however, in many cases the salesmen will not cooperate, they fail to give factual information.

A complete credit file should be kept up to date in all dealer stores. Some day, a cash customer may ask for credit and the dealer should be on his toes and say to Mr. Jones, "Just a moment, let me look at our file." Or he should know who to ask whether or not Mr. Jones was eligible for credit.

Many hundreds of thousands of dollars are lost each year by retail dealers because credit has been extended to people who cannot pay for what they have purchased.

Always remember that credit is your money or merchandise being used by someone else. It is your money. Protect it and use it wisely.

Let Them Know

Farmers are a price-conscious group, especially these days. So whenever a dealer is able to make a price cut on some item of merchandise it should be given lots of prominence.

For example, posters with the words "Prices Down" in large letters, should be given good position in the store and in the show windows. Price reductions, of course, should also be advertised prominently in newspaper and radio advertising. If the prices are below those of a year previous, the inclusion of comparisons between the old prices and the current ones make a convincing impression on farmers. List the old and current prices side by side and then include a column listing the actual reduction in dollars and cents or percentage of price cut.

STORED GRAIN LOSS

WASHINGTON—Insects and rodents cause an annual loss of \$250 million worth of stored grain, according to the U.S. Department of Agriculture.

Better Selling

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FARM SERVICE DATA

Extension Station Reports

The yellow clover aphid, an important insect pest of alfalfa, has been causing damage in Imperial, Riverside, San Diego, San Bernardino and Los Angeles counties, Cal., according to Robert Harper, assistant chief, Bureau of Entomology, California Department of Agriculture.

In a report of the State Board of Agriculture, Mr. Harper said that aphid attack results in the killing of young plants and in older, established plantings the plants are yellowed, lower leaves drop and some stalks wilt and fall. Heavy secretions of honeydew form a medium for sooty mold fungus growth. Heavy attack may require replanting. Infestation lowers the yield and reduces the grade of alfalfa.

Mr. Harper told the Board that the yellow clover aphid was first found in California in February, 1954, on roadside bur clover in San Diego County. By July it was reported on alfalfa in widespread locations in the Imperial Valley.

Collections of the pest have been reported as far north as Tulare, Kings and Madera counties, but in general aphid populations in northern California do not increase with the speed evidenced in the south.

The pest can be controlled, Mr. Harper reported, by use of parathion at two to four ounces in 15 to 25 gallons of water per acre; by malathion at eight to twelve ounces, or by systox at the rate of four ounces. He emphasized that these chemicals must be used sufficiently in advance of harvest to preclude contamination of the hay.

The College of Agriculture at Davis and the U.S. Department of Agriculture are currently studying methods of controlling the aphid and are investigating the possibility of biological control through importation of natural enemies.

The yellow clover aphid has been found attacking alfalfa throughout the southwestern United States, as far east as Texas and as far north as Kansas, according to Mr. Harper.

By making the ground unfit for plant growth through chemical treatment of the soil, control can be exercised over unwanted weeds either on a temporary basis or permanently, according to Alden S. Crafts, professor of botany, and William A. Harvey, agriculturist in the California Agricultural Extension Service. They make this report in a pamphlet published by the Division of Agricultural Sciences of the University.

Entitled "Weed Control by Soil Sterilization," the circular describes the type of chemicals which can be used for specific cases of control. Permanent destruction of plant growth is desirable along irrigation ditches and fence lines, on industrial land, or airplane landing strips and in blazing firebreaks and improving the safety and appearance of public highways.

John Durkin, New Mexico A&M extension entomologist, says stink bugs can be controlled by dusts containing 5% DDT, 15% toxaphene and 40% sulfur or 2% gamma isomer benzene hexachloride, 5% DDT and 40% sulfur or 2% dieldrin applied at a rate of 20 lb. per acre. These materials may also be applied as sprays

using the same amounts of actual material.

Spot application of diesel and naphtha-type oil sprays is proving a practical answer to row crop control of Johnsongrass, Texas A&M researchers report.

At College Station four treatments of such oils killed 99% of all Johnsongrass in cotton stands in one season. Four trips over a similar field with hand hoes eliminated only 44% of the grass.

Homer E. Rea, agronomist for the Texas Agricultural Experiment Station who has been working with various Johnsongrass killers, believes that successful spot oiling of Johnsongrass is highly significant. "It does away with intensive hand labor methods which few farmers can afford these days," Mr. Rea said.

Rose and subterranean clovers can crowd out the annoying Medusa head on rangelands, and phosphate fertilizer stimulates clover growth, Jack Major, University of California botanist, reports.

The undesirable weedy Medusa head, Mr. Major discovered, was reduced from solid stands to small patches inside of three years. The weed, common to California rangelands, has invaded treeless, brushless heavy soils from Siskiyou County in northern California to Santa Barbara in southern California.

Clover is more effective than fire, chemical herbicides and grazing, and the phosphate fertilizer gives the clover the strength to crowd out the weed, the weed control specialist said. Mr. Major is stationed at the University's field station at Hopland in Mendocino County.

When, where, and how much phosphorus put on pole beans or sweet corn will affect yields, says S. B. Apple, Oregon State College horticulturist. With nitrogen, only "how much" is important for increasing yields.

After five years' research, here are his suggestions:

For phosphorus, apply only at planting time, side dressing the fertilizer in bands 2 to 3 in. to the side and 2 in. deeper than the seed. The 120 lb. rate of actual P_2O_5 per acre gave the most economical yield increase.

For nitrogen, 50 to 100 lb. of actual nitrogen per acre was the best paying yield-booster. Timing was not too important—just so the nutrient was there for plant use.

Nitrogen and phosphorus can increase yields and phosphorus will improve quality of hay produced on much of southeastern Oregon's 500,000 acres of wild flood meadow, three years of Oregon State College research have shown.

Clee S. Cooper, agronomist at the Squaw Butte-Harney Branch Experiment Station, reports these were the only fertilizer elements affecting hay yield and quality. Potassium and other minor elements such as copper, boron, manganese and zinc also were studied.

Average increase from 60 lb. nitrogen was three fourths of a ton per acre. In general, 60 to 80 lb. nitrogen per acre gave the most return

for money spent. Rates as high as 200 lb. actual nitrogen per acre continued to increase production, but yield increases became smaller with each additional 50 lb. nitrogen over 80 lb. Either late fall or early spring applications by surface broadcasting were satisfactory.

In combination with certain management practices, phosphorus increased both the quantity and quality of hay produced on some wild flood hay meadows.

The researcher found that phosphorus gave a striking increase in the growth of annual white-tip clover, commonly found growing on eastern Oregon meadowlands. Without fertilization, this clover seldom exceeds 8 inches in height. When phosphorus was applied, it reached a height of 30 inches.

The agronomist is recommending phosphorus applications only on areas where white-tip clover is present. Applying between 40 to 60 lb. per acre annually has boosted yields from 1 to 3 tons per acre, and has increased crude protein content from 6½ to 12½%.

California farm crop production still tops the nation in dollar value in spite of ever-continuing encroachment of urban development upon the state's farm land, according to the California Fertilizer Assn.

California is the principal goal in the greatest migration of people in the history of the country. The current influx is at the rate of 440,000 per year. In order to provide housing and service facilities for all these people as well as the areas required for industrial development, almost 50,000 acres per year of new land are required.

Much of this land has been in farm crop production, says the association, and, in spite of the shrinkage of cropping area involved, the volume and cash value of California's diverse crops have remained at a rather constant level.

Figures, not inclusive of livestock, poultry or their products for the last three years are: 1952 \$1,691,000,000; 1953 \$1,653,700,000; and 1954, \$1,623,010,000.

The association says that improved cultural practices account for most of the increased production from available farm land. High on the list is the increased use of commercial fertilizers. It is a well established fact that \$1 invested in the proper fertilizer will return an average of \$3 and in many cases far more in increased crop production with no increase in the area farmed, according to the association.

Fertilizing alfalfa with phosphorus fertilizers is an accepted practice in New Mexico. Experimental tests have shown, and farmers confirm, the value of the practice for all parts of the state except the southwestern corner, where crop response to phosphorus has been quite variable. But once the usefulness of phosphorus application to alfalfa has been established, questions about the kind and amount to use and the need for micro elements became more important.

Researchers at New Mexico A&M College's Agricultural Experiment Station, report they have found some of the answers to these questions. Tests to determine the effectiveness of several different fertilizers on New Mexico Common variety of alfalfa have disclosed that: phosphorus deficient soil requires at least 80 lb. available phosphoric acid each year for maximum alfalfa yields; a heavy application (240 lb. of P_2O_5) of phosphorus fertilizer applied at the time of seeding alfalfa, can last for at least three years; initial applications should

be heavy (at least 120 lb. available P_2O_5) on phosphorus deficient soil, later applications may be lower (80 lb. P_2O_5); and use of nitrogen fertilizer in addition to phosphorus fertilizer on new seedings of alfalfa was no better than application of phosphorus alone.

H. E. Dregne, Experiment Station agronomist, reports that these conclusions were reached from data from three years of alfalfa hay yields.

Several Sacramento Valley farmers have been experimenting successfully with phosphate fertilizer sprayed on foliage during the growing season.

The experiments have been encouraged by H. A. Hannesson and Dr. Ogden Riddle, farm consultants in Davis, Cal., and formerly agronomists at the University of Nebraska.

"Our experiments demonstrate that the nutrient is an excellent supplement to sound soil practices, but is not a substitute or replacement for needed soil fertilizer," Mr. Hannesson said.

"Phosphorus applied to the plant's foliage improves the quality and increases the yield of many crops. But the plants must have the proper start which they can get only through adequately feeding the roots."

Dr. Riddle said the phosphorus in the soil is sufficient for the slow growing period but when the plant reaches its fast growing stage it cannot absorb the low solubility phosphorus in the soil. Sprayed on the foliage, the phosphate provides the extra fuel which results in quality improvement and yield increase, he said.

Experiments have been conducted over five years. One grower who has participated for three seasons believes it increased barley yields from one-half to three-quarters of a ton per acre and peas one to one and one-half tons per acre in normal years. Growers who have tried the experiment on beans report a 7% crop increase.

CREDIT PLAN

(Continued from page 9)

ing best suited to the land, and borrowers will be required to follow farm management practices recognized locally as best for their particular type of land.

In line with recommendations developed at the Denver and later meetings, the department's Soil Conservation Service, in cooperation with State Experiment Stations, has doubled the rate of soil mapping in the Great Plains region, and plans to further accelerate mapping with a view to completing the survey by June 30, 1959.

Immediate attention is being given critical areas where soil survey data are needed at once as a basis for land use shifts and modification of agricultural programs to fit climatic limitations of that region.

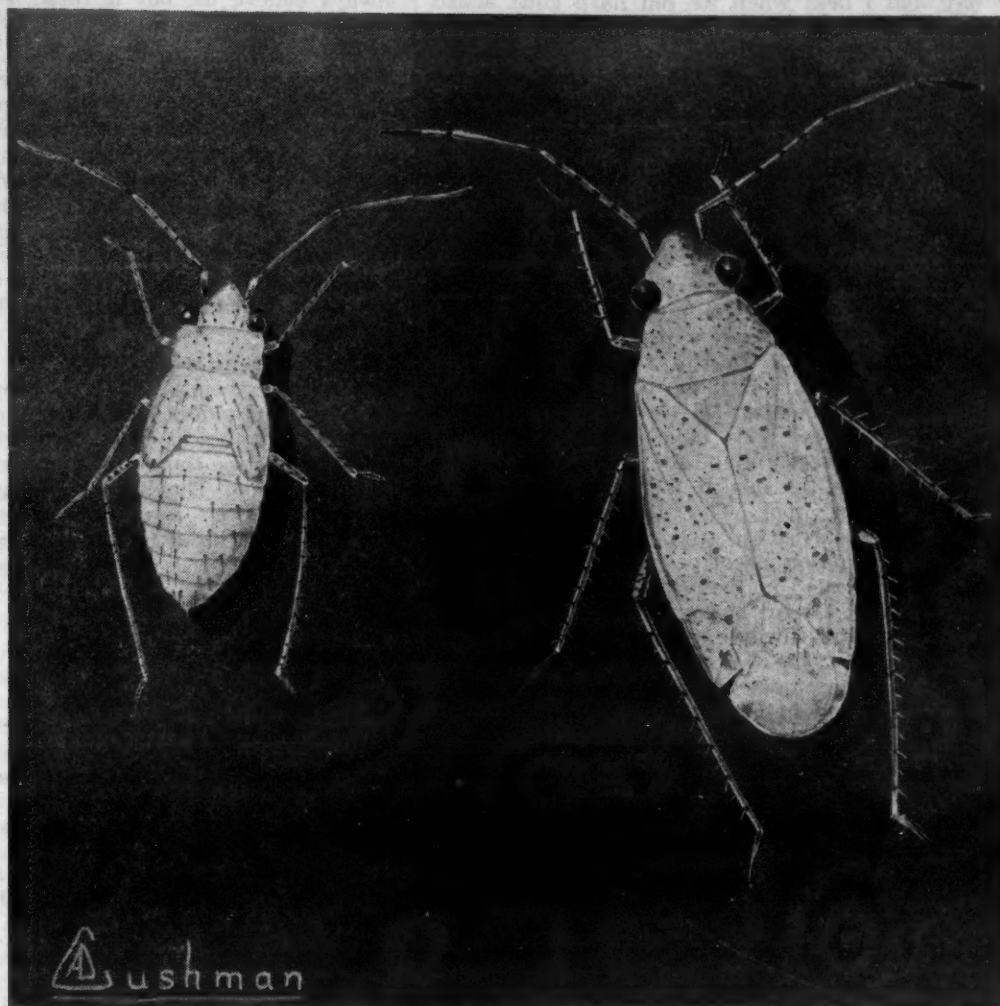
The regular production loans will bear 5% interest, which is fixed by law; real estate loans on family-sized farms are 4½%, and the special emergency loans will be at 3%. Terms in all instances will be geared to the expected repayment ability of the applicant.

Previously, emergency loans were limited to credit needed annually by farmers or ranchers to carry on normal operations. The expanded emergency loans, which will continue to supplement credit supplied by regular lending programs, are expected to help farmers and ranchers finance major reorganizations when that is necessary to stabilize their operations.

Mr. Dealer--Cut out this page for your bulletin board

BUG OF THE WEEK

Cotton Fleahopper



How to Identify

The adult fleahopper is about $\frac{1}{8}$ in. long, flattened, elongate ovate in outline, with prominent antennae. The body is pale yellowish-green in color with minute black hairs and black specks over the upper surface. Its distribution is general throughout the cotton belt and over much of the U.S.

Habits of the Fleahopper

This pest hibernates in the egg stage on various weeds. In southern Texas, it has appeared on horsemint early in March, migrated to cotton late in April, and deserted the cotton by the end of July to feed for the remainder of the season on other plants, including snap beans and potatoes. Eggs are yellowish white, about $\frac{1}{30}$ th in. long and a fourth as wide. They are inserted beneath the bark, especially just below the growing tips. They hatch in just a little over a week and the greenish nymphs begin sucking the sap from terminal bud clusters. Nymphs molt

five times and in from 10 to 30 days, are mature bugs.

Damage Done by Fleahopper

This bug has caused serious damage to cotton in scattered areas throughout the south, by sucking the sap from the very small squares and other terminal growth, resulting in excessive shedding and an abnormal whip-like growth of the plants.

Control of Fleahopper

Ten percent toxaphene dusted at the rate of 10 to 12 lb. an acre has been effective in control of this pest. Likewise, at the same rate per acre, have been the following: 2% chlordane; 1% parathion; 5% DDT and 75% sulfur; or 1% Gamma BHC. Less effective has been sulfur alone, or as a 2:1 mixture with calcium arsenate. Cultural methods include the eradication of weeds and the destruction of cotton stalks during the fall and winter, thus eliminating the environment for next season's population of fleahoppers.

Drawing of fleahoppers furnished Croplife through courtesy of Hercules Powder Co., Wilmington, Del.

Previous "Bug of the Week" features are being reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.

Better Selling

Richer Sales Fields for Dealers



It was a rainy summer day and Pat McGillicuddy sat at his desk looking through magazines and doodling and making some notes. It was easy to see that the tall, blue eyed Irishman, now fully recovered from his recent appendectomy and virus infection, was doing some thinking, for now and then he would stare at the wall, a faraway look in his eyes.

His desk, as usual, was heaped with magazines, booklets, agricultural college news releases and various other material. In contrast, as usual, was Oscar's neat-as-a-pin desk which faced Pat. There were always six sharp pencils in an exact row on Oscar's desk, a glass bowl for retrieved rubber bands and for a month now, a fierce green plastic bulldog with a cup at the top for holding paper clips, many of which Oscar got from papers tossed into Pat's wastebasket.

Oscar was figuring discounts. There was a look of near contempt in his eyes as he glanced now and then at Pat's heaped up desk, at his relaxed, thinking attitude. To Oscar this was not working. Nothing was working unless a person was doing something with his hands and making motions. Thinking? One could do that at home, after working hours, that was Oscar's idea.

"Oscar," Pat said suddenly, "if you were a farmer, and I was a salesman of fertilizer and insecticide, would you believe what I told you?"

"That depends," Oscar said suspiciously. "I'd have lots of salt on hand. Of that you can be sure."

Pat chuckled. "But if a county agent, or a high school agriculture teacher came to you and advocated the use of certain fertilizers and insecticides for your crops, based on needs, you would believe him, wouldn't you?"

"Maybe," Oscar said stubbornly. "But you are talking foolishly. I am not a farmer, and I don't intend to be one. And I don't care about county agents."

Pat McGillicuddy grinned. "But if you were a farmer you'd be inclined to believe what the county agent and ag teacher recommended. Oscar, I have been looking into the work of the 4-H clubs in this county, and I think we can do them some good, and they can do us some good."

Oscar's eyes narrowed. "How much will it cost us?"

"Don't always think of the cost," Pat said a little petulantly. "You haven't even heard what my idea is."

"I know your ideas cost money," Oscar said sharply. "We could get along with quite a reduction in ideas around here."

Pat sighed. "Nora always tells me to be patient with you, Oscar, but it's quite a job, begorra. Here I work my brains hard to find ways to make more sales and profit for us, and you say 'no' to every idea."

"That's why we've got money in the bank," Oscar informed him. "Lots of other dealers have folded up since we went into business."

"That's true," admitted Pat, "and a lot of dealers who went into busi-

ness when we did have gone ahead and boosted their annual volume to two and three times our own. We could have done the same if we hadn't held back so much."

"Wait till a depression comes," Oscar predicted gloomily. "Then some of those big shot dealers will fold up. Too much overhead and no business."

"Let's not argue about that," Pat said, "but you must listen to my idea. I am sure it will put more cash into the till. In this state the past two years 4-H clubs have been studying entomology. It's one of their projects. These kids have learned all about insect life and the relations of insects to the health, wealth and happiness of man. The 4-H members have learned to recognize some of the major insect pests and useful insects found in their local areas."

Oscar shrugged. "Oh, those kids are always studying something."

"The 4-H members in this project become acquainted with the life cycle and habits of insects that are most common to their areas and they learn about the proper use of insecticides."

At this word, Oscar pricked up his ears. "They do?"

Pat nodded. "So, what better promotion idea could we start than to invite the 4-H members to come to this store some Saturday afternoon and give farmers and us a talk on what they have learned about insects? Let them bring their insect collections, their posters and things like that."

Oscar said nothing. His mind was working on the cost angle.

"You see, Oscar, if you and I keep telling farmers about what insects are damaging to crops, they may not

always believe us, but if these 4-H boys tell them, they will believe it."

"It's the same as if you were a farmer and I was a fertilizer salesman. Even if I told you the gospel truth, you'd swallow it with a grain of salt, just because I'm a salesman. But these kids — they're different. They have nothing to sell but information. We sell information, too, plus merchandise. The kids can help us convince farmers to use insecticide—the right kind. We can help the kids, too."

"How?" Oscar wanted to know.

"By giving them prestige, a chance to show their elders how much they know and how well they know it. That's wages for those kids and their instructor, too. They'll get a news item and maybe a picture in the paper, and we'll be mentioned, too, as giving the kids a chance to show their stuff."

"And?"

Pat looked puzzled, then said: "You mean a lunch, don't you? Sure, we have to serve a lunch. But that won't cost much. And with farmers so interested in insects because of what these 4-H members tell them, we are going to sell enough merchandise to pay for that lunch and some besides."

Oscar reached up and marked a big "X" on the 18th of the month on the big wall calendar.

"What's that for?" Pat asked.

"I'm keeping track of how many promotions you want to try every month," Oscar said sharply. "If the promotion doesn't pay I'll circle the X and make a big goose egg out of it. That calendar will be a constant reminder to you and to me to go slow. We're not in this business to have fun—not me, anyway."

Washington Growers Told to Watch for Sulfur Deficiencies in Wheat Regions

WASHINGTON STATE COLLEGE — Washington wheat growers should watch for a sulfur deficiency—particularly in the annual cropping areas, says Glenn E. Leggett, soils expert at Washington State College.

Mr. Leggett told an agronomy field day audience here recently that sulfur deficiency has shown up throughout the annual cropping areas of eastern Washington during the last three or four years. He's found it mainly where there has been no application of sulfur-carrying materials during that period.

"It is more noticeable on spring wheat than with winter wheat," he reports. "Out of some 30 trials in 1954 we've run throughout eastern Washington, seven locations definitely responded to sulfur."

Frequently sulfur may increase the plant growth on summerfallowed ground. However, usually very little yield increase comes as a result of the plants' having more sulfur.

So far, there doesn't seem to be any general need for phosphorus fertilizer in the state's major wheat growing areas. "Some of the apparent phosphorus responses noted have ac-

tually been sulfur responses resulting from sulfur contained in the phosphate materials," Mr. Leggett said.

Nitrogen—the other element eastern Washington seems to lack for best wheat growth—is still a good investment, according to Mr. Leggett. The amount to put on varies with climate and with cropping conditions. But need for nitrogen is general in the wheat area.

"It takes about three pounds of nitrogen to produce one bushel of wheat," Mr. Leggett figures. "This is an attractive investment for farmers since, at present prices, if the right amount of nitrogen fertilizer is used, about \$4 is returned for each dollar invested in fertilizer."

BOOSTS ONION YIELDS
COLLEGE STATION, TEXAS—Superphosphate and ammonium nitrate caused highly significant increases in the yield of Granex onions in experiments conducted by Texas A&M College in 1954. Placing the fertilizer directly beneath the onion row increased the yield of U.S. No. 1 bulbs more than 1 ton an acre.

Fertilizer Sales in California Set New Record in 1954

SAN FRANCISCO—The sale of chemical fertilizers in California climbed by more than 3% between 1953 and 1954 to reach a new all-time peak of 833,833 tons during the calendar year.

The increase from 808,550 during the previous year, was at a slower rate than the 1952-53 rise of about 8%, according to figures released recently by Bureau of Chemistry of the California State Department of Agriculture, for the 52nd year since compilation of fertilizer sales was begun in 1903.

As in previous years the peak of the sales occurred during the second quarter of the year when 298,208 tons were recorded. The seasonal peak was sharper this year than last as both the first and third quarters were lower than the corresponding periods of 1953 while the second quarter stood almost 50,000 tons above.

The use of agricultural minerals dropped somewhat during the year recently ended, the second annual drop in succession. Total tonnage was registered at 615,992 for 1954 as compared with 714,077 for 1953 and an all time high of 817,255 in 1952. Sales last year were lower than in 1951 when the bureau reported 700,356 tons.

Of the commercial fertilizer total, 198,615 tons consisted of mixed dry fertilizers. During the middle twenties mixed dry fertilizers accounted for about 40% of the total. The peak year was reached for this group in 1946 with 281,071 tons, accounting for just under half of the total of 574,118 tons that year.

Ammonium sulfate, sales of which during the '20's were only about 15% of the dry fertilizers, has climbed now to 158,998, and the increase has been steady since 1948. Ammonia solutions, not registered until 1947 when only 1,012 tons were sold, had increased during the six succeeding years to 35,694, and between 1953 and 1954 by almost 300% to 103,775.

Entomologist Visits Dealers to Discuss Clean Grain Program

LARAMIE, WYO.—In line with the work of helping farmers, elevator operators and millers in furthering their clean grain programs, T. R. Robb, University of Wyoming extension entomologist, is contacting nearly all grain and feed dealers in Wyoming during July and August.

Mr. Robb says he is talking over problems of grain sanitation as related to insects, rodents and birds. He has always told farmers, "Controlling grain pests is a two-sided problem. Keep pests out of bins and granaries, if possible. Kill them as soon as you can if they get in."

Big reason for visits, Mr. Robb says, is to find out what the biggest problems are among farmers, operators, and millers and how they can best attack the problems.

Unpredictable Insect

EL PASO, TEXAS — The yellow clover aphid is proving to be an unpredictable insect in this area. Last year it almost stopped alfalfa production in parts of the upper Rio Grande Valley, but has now almost disappeared from many fields. A few farmers are now cutting alfalfa the third time this year, and have had very little poisoning to do for the yellow clover aphid.

New Chemical Sales

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New Developments in Farm Chemicals Can Mean Bigger Sales for the Alert Retailer

By AL. P. NELSON
Croplife Special Writer

Alertness has always paid off in business, because it enables the wideawake fellow to cash in on new sales while others are sleeping. In fact, most American business men are known for their ability to see and exploit many business opportunities.

As the fertilizer and farm chemicals field is developing, with numerous farmers finding that it pays to use larger quantities of fertilizer than they had ever dreamed of using, and with a host of farm chemicals on the market designed to protect

Dealer Clinic

crops from pests, the alert dealer has just so many more sales opportunities to push—if he wishes to do so.

Take, for example, the soil insecticides now on the market which can do a good job in controlling insects in the ground. Many of them can be put into the ground at the time fertilizer is spread, thus saving the labor cost.

But how many alert dealers suggest to a farmer when getting his order for fertilizer for corn fields, "How about mixing soil insecticide with that fertilizer to control the corn rootworm, the corn seed beetle and the corn seed maggot?"

The chances are that many farmers have not heard of these soil insecticides. Some who have heard of them perhaps are not aware that they can be spread along with the fertilizer. Other farmers perhaps just don't think of buying soil insecticide along with fertilizer, and need to be reminded.

It is the fertilizer dealer's business to remind farmers of these things, and be prepared to answer rightly when farmers say, "How does it work and what's it made of and how much to an acre?"

One such chemical requires 1½ lb. per acre when it is broadcast. Mighty cheap insurance for the farmer against those soil pests, isn't it? And many a farmer will be glad that his fertilizer dealer recommended that he use it, too. And the dealer will have upped his sales a little.

At Champaign, Ill., an alert television station offers free programs to the state department of agriculture for various activities. One such television program showed the college experts exhibiting and discussing three types of spray equipment for controlling weeds and insects. The program was put on to help farmers decide which type of equipment to buy for their needs.

Now wouldn't that have been a good place for some fertilizer and farm chemicals dealer to follow the program with an ad on sprayers or chemicals? Perhaps it would be possible for a fertilizer dealers' district club to buy a television program now and then where cooperative advertising can be done and the cost prorated amongst the dealers. There are many sectional television stations whose rates are not too high and where a "visual selling message" can be put across very easily.

One large scale fertilizer spreading concern put on a television show on a rural area station more than a year ago, showing how it spread fertilizer. The owner told me that his orders doubled because of this television program which cost him \$300 for one month. "It did the trick," he said. "It showed the farmers how the job was done."

Do you operate a barn spray service, or a fruit spray plan or a weed spray program? If you do, you may consider showing farmers through television how the service operates. Or, if you do not want to

use television, take large size photos of your sprayers in action and post these photos in your store so that all can see.

The experiment stations of colleges of agriculture are constantly making fertilizer recommendations based upon tests. Most dealers do not make sufficient use of these findings. Some of them are worthy of being put on signs and placed in your store so that farmers can see them and be impressed.

One state recommended an increase in the amount of potash to be put on soils of a certain section of the state, due to heavy crop production. Whereas a former recommendation called for 270 lb. muriate of potash for a four year rotation, the new recommendation called for 400 lb. per acre of the same fertilizer.

When you call recommendations like these to the attention of your customers, they properly have the weight of authority which shows the farmer that you are right in trying to sell him those requirements. Such recommendations, properly used, can help many a dealer sell more merchandise.

How about a good fruit tree spray program? The fertilizer dealer can work up such a program and broadcast it some weeks prior to the spraying season, and he will be able to get many orders. Don't make such explanations too short. Better to devote one single direct mail sheet to a fruit spray program and send it to farmers so they can save and post it, than to lose the descriptions on a page of direct mail which also details many other spray or fertilizer uses.

In his enthusiasm to give the farmer all the new information constantly coming out on fertilizers and sprays, the dealer sometimes gives the farmer too much at one time. Better to departmentalize this information, and feed it to them sheet by sheet. Don't let the farmer think of more than one buying suggestion at a time.

Every alert dealer, too, will want to contact his county agent and extension workers on fertilizers and sprays. You will find that many county agents give talks on these materials and often will be glad to use material you give them. You can gain a lot by being on friendly terms with such men. In return they may often come and talk free of charge at your farm meetings.

In the busy seasons just ahead there will be many opportunities for you to be alert and to thereby win more sales. Lay out a program to get as many of these extra sales as you can.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Formation of Phillips Pacific Chemical Co., which will erect an ammonia fertilizer plant in southeastern Washington, was announced by Phillips Petroleum Co. and Pacific Northwest Pipeline Corp., which will jointly own the newly-formed firm. . . . Shell Chemical Co. announced plans to build a new urea plant at Ventura, Cal.

The Food & Drug Administration extended the effective date of the pesticide tolerance amendment to Oct. 31. The former deadline was July 22.

Monsanto Chemical Co. announced it will market agricultural chemical formulations under the Monsanto label in a 15 state mid-western area beginning in 1956. . . . Southwest Agro Chemical Corp. said it will build a \$2½ million plant at Chandler, Ariz. for production of anhydrous ammonia and other nitrogen products.

A harmonious meeting on the grain sanitation campaign, conducted by the U.S. Department of Agriculture, appeared to point toward a smoother path for pesticide sales in the clean grain drive. . . . Pakistan was awarded a \$1,046,452 grant by International Cooperation Administration for equipment for a fertilizer factory.

Cities Service Co. and Continental Oil Co. have joined Mid-South Chemical Co. An expansion program calls for erection of an anhydrous plant at Lake Charles, La. . . . Western Phosphates has developed plans for expansion of its treble superphosphate and ammoniated phosphate plant at Garfield, Utah.

The sixth annual Pacific Northwest Fertilizer Conference at Boise, Idaho, June 28-30, featured speakers from USDA, agricultural colleges, and custom operators from the western area. Reports were heard on fertility studies. . . . U.S. Tariff Commission reported that production of all pesticides and other organic chemicals in 1954 totaled 419 million pounds, an increase of 18% over the 356 million pounds reported for 1953.

Program committee members for the September meeting of the National Agricultural Chemicals Assn. (Spring Lake, N.J., Sept. 7-9) were named. M. R. Budd, Hercules Powder Co., Wilmington, Del., is chairman. . . . Members of the Association of Southern Feed & Fertilizer Control Officials met at the Jung Hotel, New Orleans, June 22-24. Frank E. Boyd, Virginia-Carolina Chemical Corp. pointed out the advantages of having fewer grades of fertilizers to avoid confusion and additional work. "Improvements in the number of grades must come through the cooperative effort of research, industry and education," he said.

A. P. Gates was named assistant to C. Cecil Arledge, vice president of Virginia-Carolina Chemical Corp. at Richmond and R. Andrew Jenkins was made manager of V-C's Baltimore sales office. . . . Dr. Norman A. Shepard has retired from his post as chemical director of American Cyanamid Co.

The National Agricultural Chemicals Assn. announced the appointment of Donald L. Miller as editor of the association's news service. He succeeds Scott Runkle who resigned recently.

Thunderbird Chemicals, Inc., announced plans for construction of a \$13 million anhydrous ammonia plant near Kyrene, Ariz. President of the new firm is Fred Shanaman, also president of Pennsylvania Salt Mfg. Co., of Washington. A plant site of 122½ acres has been procured.

The Pacific Branch of ESA was told that only a small number of petitions for tolerances required under the Miller amendment, have been received by the Food and Drug Administration. Attendance at the meeting, over 400, broke previous records. . . . A new insecticide plant at San Antonio de Belen, Costa Rica, began production of various formulations to be marketed in Central America. O. J. Fredrickson was named chief operating executive of plant.

A series of revised index numbers of prices of fertilizer materials for the years 1910 to 1954 was published by the University of Maryland Agricultural Experiment Station's department of agricultural economics and marketing. The changes were made to "provide a more realistic picture of the comparative prices of fertilizer materials (some of which) no longer represent a significant quantity relative to the total of all fertilizer materials," according to Paul R. Poffenberger, University of Maryland.

The U.S. Department of Agriculture issued its national bulletin outlining disbursement of some \$250 million in the 1956 agricultural conservation program. There are no major changes in the program. . . . The Department of Health, Education & Welfare outlined the conditions under which it will extend the effective date for the new Miller Law to apply to pesticides on a product-by-product basis.

Fertilizer consumption during 1954 totaled 20,508,000 tons, for a new record, according to the National Plant Food Institute. A NPFI survey shows, however, that sales for the 1954-55 fiscal year may be down as much as 4%.

About 900 attended the preliminary meeting of the National Plant Food Institute, being formed by the consolidation of the National Fertilizer Assn. and the American Plant Food Council. . . . W. E. Shelburne was named president of Armour Fertilizer Works. . . . New president of Pennsylvania Salt Manufacturing Co. is William P. Drake, 42, youngest president in Pennsalt's 105-year history.

A survey taken by Virginia's state chemist, Rodney C. Berry, indicated that more states are permitting the sale and distribution of fertilizer-pesticide mixtures than were so numbered in a similar survey taken in 1954. Six more states reported that mixtures were being sold within their borders than were noted in last year's questionnaire.

The Farm Chemicals Library

Reader Service Department

CROPLIFE

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C. E. Millar, Professor Emeritus of Soil Science, Michigan State College.

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SOILS AND SOIL MANAGEMENT A. F. Gustafson

A complete study of soils; physical properties, soil organisms, organic matter, relation of water, control of water, tillage, erosion, acidity and its control by liming, management of alkali soils, nitrogen and its importance to the farmer, production, conservation and utilization of farm manures, production and utilization of green manure crops; fertilizer materials and their effects on soils; crop rotations; fertilization and long-term maintenance of productivity of mineral soils. **\$6.00**

IRRIGATED SOILS: Their Fertility and Management—New 1954—Second Edition

D. W. Thorne and H. B. Peterson, Department of Agronomy, Utah State Agricultural College. Dr. Thorne is also Chief of Soils and Fertilizer Research Branch, Tennessee Valley Authority.

An outstanding text dealing with the problems of irrigated regions. In addition to the chapters dealing with irrigation, the salt problem, reclamation of saline and alkali soils, there are chapters on maintaining organic matter in soil, minerals and plant growth, fertilizer elements and fertilizer materials, using fertilizers, soil management for general field crops, for fruit, vegetable and specialty crops. **\$6.50**

THE RESPONSE OF CROPS AND SOILS TO FERTILIZERS AND MANURES (1954) W. B. Andrews

A new book, with special reference to Anhydrous Ammonia and other sources of nitrogen in liquid form. Deals also with legumes as a source of soil nitrogen, and the uncertainty of green manures; the response of soil to phosphorus, potash and soda; the effect of fertilizers on yield and feeding value of hay and pasture crops. 468 pages, 19 chapters, 89 illustrations. **\$4.50**

CHEMICALS, HUMUS AND THE SOIL

Donald P. Hopkins

The theme of the book is the necessity of chemical fertilizers to maintain the fertility of the soil. It has concise information on which soil conditions and which chemical fertilizers are most suited for special crops and vegetables. Space is devoted to cereal crops, barley, wheat, oats and rye; to roots and tubers, sugar beets, potatoes, carrots, parsnips and turnips; to vegetable crops, beans, peas, alfalfa, lupines; to grasses and clovers; to onions, flax, kale, cabbages, lettuce, tomatoes, celery, cauliflower and fruits. It clarifies the relationship of manures, compost and chemicals as fertilizers and points out how chemicals should be used to obtain the best results. Its philosophical soundness and logic should do much to avert the confusion of thought introduced by the advocates of compost and manure as against the use of chemical fertilizers. **\$8.50**

SOIL SCIENCE SIMPLIFIED Helmut Kohnke

A concise textbook dealing with basic concepts of soils. Much useful information for students in agriculture, farmers, fertilizer salesmen, etc. 66 pages, paper bound. **\$1.00**

MANUAL ON FERTILIZER MANUFACTURE—Second Edition Vincent Sauchelli

Available Oct. 1, 1954. A complete up-to-date revision of this well known book, that reviews in simple, everyday language the processes of manufacture of superphosphates, of ammoniation, and the formulation and preparation of mixed fertilizers. Indispensable to fertilizer plant supervisors and operators, and a valuable aid to research men and teachers. New chapters added: on plant nutrition, mixed fertilizers, ammoniation, granulation, revised and brought up-to-date. 86 tables of practical information. **\$4.50**

COMMERCIAL FERTILIZERS, Their Sources and Use—Fifth Edition (1955) Gilbert H. Collings

Based upon the author's practical experience as an experiment station agronomist and teacher, and incorporating information on recent developments by agronomists, chemists, engineers and fertilizer manufacturers. Authoritative on problems concerning commercial fertilizers and their use in gaining larger yields. 160 illustrations, 523 pages. **\$8.00**

USING COMMERCIAL FERTILIZER (1952)

Malcolm H. McVickar

Dr. McVickar is chief agronomist of the National Fertilizer Association. The book deals specifically with commercial fertilizer, how it is produced and how to use it. It is non-technical. It includes chapters on how to measure fertility of soils, secondary and trade-element plant foods, 208 pages, 106 illustrations, cloth bound. **\$3.00**

HUNGER SIGNS IN CROPS—Second Edition

A symposium—published jointly by the American Society of Agronomy and the National Fertilizer Association.

A comprehensive study of nutrient-deficiency symptoms in crops compiled by 10 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents, and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color. **\$4.50**

MANURES AND FERTILIZERS

A survey by the Ministry of Agriculture and Fisheries, dealing with soil analysis, inorganic fertilizers, waste organic substances and principles of manuring. In language to give the farmer basic principles of increasing soil fertility by the application of natural organic manures and synthetic inorganic fertilizers. Many important tables on quantitative data. **\$2.50**

PLANT REGULATORS IN AGRICULTURE

Dr. Harold B. Tukey

Published September, 1954. A textbook giving background material for county agents, farmers, citrus growers, nurserymen, gardeners; providing fundamentals and general principles; covers encouragement of roots by plant regulators, control of flowering and fruit setting, parthenocarp, abscission, prevention of preharvest fruit drop, delaying foliation and blossoming, maturing and ripening, inhibition of sprouting and weed control. Brings together specialized knowledge of seventeen authorities in the field, with two chapters written by Dr. Tukey, head of department of horticulture at Michigan State College. 269 pages. **\$5.50**

MIDWEST FARM HANDBOOK—New Third Edition

A publication of The Iowa State College Press

Twenty big sections cover all phases of farming, including livestock, the dairy herd, livestock disease prevention, dairy products, poultry and poultry diseases, agricultural engineering, soils and crops, weed control, plant disease control, pest control and other valuable helps to the farmer, feed and fertilizer dealer, etc. 387 pages, with many illustrations in color. **\$3.00**

THE CARE AND FEEDING OF GARDEN PLANTS

Published jointly by the American Society for Horticultural Science and the National Fertilizer Association.

An entirely new, one-of-a-kind book, it is designed to acquaint readers with nutritional deficiency symptoms or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, garden vegetables, and cane and tree fruits. It stresses plant "feeding," or "what makes plants grow." Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 300 pages of text and illustrations including 37 pages in full color. **\$3.00**

WEEDS—Second Edition (1955) W. C. Muenscher

Entire book has been revised and reset, with descriptions of seventy weeds added to the original list of five hundred, plus twelve new full-page plates depicting nineteen kinds. Keys and full descriptions provided for identification with detailed illustrations of 331. Types and sources of weeds, their means of reproduction and dissemination, and the amount of damage they inflict on crops. Specific directions for control, with references to chemical methods of recent discovery. **\$10.00**

WEED CONTROL

W. W. Robbins, A. S. Crafts, and R. N. Raynor

A textbook-manual presenting a modern view of the rapidly developing field of chemical weed control. Reports in detail the research on which most modern herbicide usage is based. Weeds, their reproduction, prevention, biological control, chemicals in weed control. Herbicides, foliage contact applications, hormone-like substances, root applications, evaluations of combinations of chemical applications. Weeds of grasslands and turf. Special weed problems, cropped and uncropped areas. Published 1952. 503 pages, 155 illustrations. **\$8.00**

INSECT, FUNGUS AND WEED CONTROL

Dr. E. R. de Ong

The information is grouped according to field of application rather than to chemical composition or nomenclature. Chapters on insecticide label, seed disinfectants, herbicides, forest insects and diseases, livestock insects, and the pests found in household and industry. Fumigation of warehouses, residual sprays and preservatives for fruits, vegetables and wood products are covered. An up-to-date guide on pest control with the needs of operators, agricultural and structural specialists carefully considered. Shippers and warehouse personnel will find the book useful. **\$10.00**

THE CHEMISTRY AND ACTION OF INSECTICIDES

Harold H. Shepard, Entomologist, U.S. Department of Agriculture, formerly Associate Professor of Insect Toxicology, Cornell University.

Treats the chemistry of insecticides, the history of their use, their commercial importance here and abroad, the nature of the major uses, the influence of environment on effectiveness. Materials are arranged according to their chemical relationships. Two chapters relating to organic compounds largely new as insecticides. Illustrative data in form of tables, and a convenient appendix of equivalents arranged for practical use in the field. 504 pages. **\$7.00**

DDT and NEWER PERSISTENT INSECTICIDES

T. F. West and G. A. Campbell

The first and major part of book is devoted to the physical and chemical properties, manufacture, formulation and applications of DDT. The second part deals with other chlorinated hydrocarbons whose insecticidal properties have been discovered recently and compares these new insecticides with DDT. The preparation of aqueous suspensions, solutions, emulsions, and dusts containing DDT, the compatibility of DDT with other insecticides, fungicides and additions are covered in detail. Contains dozens of tables on the solubility of DDT in various solvents, the catalytic activity of accessory substances in the presence of DDT, analogues of DDT, the comparative toxicity, hydrolysis and solubility of DDT analogues, the toxicity of DDT for almost all important insects, etc. Many illustrations. **\$8.50**

APPLIED ENTOMOLOGY, Fifth Edition

H. T. Fernald and Harold H. Shepard

This text since 1921 has had an outstanding record of usefulness. The Fifth Edition preserves the general organization and coverage, with changes to improve the presentation and to incorporate new knowledge. Contains chapters on anatomy, physiology and development. The economic importance and control of insects are discussed in a general way with much attention to insecticides. The classification of insects is emphasized, with examples drawn from species conspicuous for being very harmful or decidedly beneficial. Specific control measure included for injurious forms. Last chapter considers other pest animals closely related to insects. 385 pages. **\$7.00**

CHEMICAL BUSINESS HANDBOOK Dr. John H. Perry

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COTTON OUTLOOK

(Continued from page 1)

agencies, fearful of international trade effects, are entering a veto against CCC independent action in the world cotton market.

These USDA officials told Croplife that they felt they needed new legislation—now pending in Congress in a bill introduced by Sen. James O. Eastland (D., Miss.). This would permit USDA to sell the so-called bob-tail staple grades of cotton in either the domestic or export market at open market prices and without regard for the statutory re-sale formula of the Farm Law. This law requires such domestic sales be made at not less than 105% of the prevailing support price plus carrying charges.

Senate sponsors of this bill are said to have reached the conclusion that high rigid supports for cotton are working to the disadvantage of the cotton producer, and must be halted. But in the meantime they advocate an aggressive sales program both at home and in the export market for these accumulated less desirable staple lengths.

The Eastland bill would permit USDA to dispose of surplus cotton stocks by staple lengths for a period of six months when it is determined that any staple length is in surplus supply over and above needs for an 18 month period.

If the Eastland bill clears Congress at this session—and there is some good reason to believe it will be adopted—it will mean that USDA will, after the adjournment of Congress, announce a new sales policy which will offer U.S. stocks of the bob-tail staple lengths at world market prices and at the price level the domestic market will pay.

Otherwise USDA officials believe that the cotton industry will be headed for hard times as cotton production in other areas of the world, protected by the U.S. high price support umbrella, will take over world markets.

Although this is a large dose of gloomy forecast it is something that the plant food and pesticide industry must face. News—to be important—is not always good news. . . . There used to be an old saying—get the bad news out fast, good news takes care of itself.

Notwithstanding any late action by Congress at this session, USDA officials forecast that cotton will be price supported at 90% of parity for the next two years based on the demand-supply situation and the willingness of cotton producers to accept acreage controls.

USDA officials say that much remains to be done in re-vamping the area of cotton production. Much can be accomplished through a new pattern of cotton production where plant foods and pesticides may play even a larger part in increasing yields on smaller acreage of better staple lengths. Upland cotton has been historically produced in areas which are now seen by scientists as unsuitable for the mule-hand labor cotton economy.

Earl L. Butz, assistant secretary of agriculture, had a message for the fertilizer and pesticide industry last week when he spoke at Mississippi State College. He said:

"As important as mechanization has been in the improvement of southern agriculture, we should not overlook the effect of measures that have been taken to improve increased per acre yields. Here in the South the use of more fertilizer, improved seed, hybrid corn, more effective insect control and disease control and in some cases better land selection have resulted in much higher yields.

"Over-all crop production per acre

for the past five years was about 25% over the 1935-39 average. Since 1940, the use of commercial fertilizer has just about doubled. In the Delta the use of anhydrous ammonia has reduced the cost of applying nitrogen on larger farms by as much as one fourth. Expenditures for sprays and dust to control insects and plant diseases have increased greatly in most areas of the South."

The cotton industry is now in a period of transition. It remains to be seen if the transition is to be one of new horizons or of economic sickness. It is not insignificant that top USDA leaders are gloomy.

Fulton Bag Firm Dedicates Plant In New Orleans

NEW ORLEANS — Dedication of Fulton Bag & Cotton Mills' new million dollar plant took place July 11.

The plant, within sight of the Mississippi River, was begun in October, 1953. One year later it was ready for partial occupancy.

Only within recent weeks have the complete manufacturing operations been under way in all departments for making cotton bags, burlap bags, multiwall paper bags, open mesh bags, waterproof paper lined bags, cotton pick sacks, tents, tarpaulins, curing mats, salvage covers and other products.

The building, which measures 296 ft. x 715 ft. and contains 212,000 sq. ft. of area, is constructed of steel trusses with a cement foundation and floor. All manufacturing areas are illuminated by fluorescent lights while special plastic wall sections permit use of daylight as well as artificial light.

General office areas as well as a cafeteria seating 250 people, are completely air-conditioned. Employee facilities, in addition to the cafeteria, include rest rooms and dressing rooms, smoking areas, first aid stations and offstreet parking for automobiles.

Alongside the warehouse area, a railroad siding permits the handling of 10 freight cars at one time. There are eight truck loading bays, equipped with hydraulic lift docks which raise or lower to adjust to various truck heights.

County Agent Urges Farmers to be Alert For Cotton Insects

STANTON, TEXAS—Cotton growers can do more to keep down insect infestations in their fields by making insect counts regularly, says Jack Davis, Martin County, Texas agent.

"Some farmers don't know how to recognize the harmful insects," Mr. Davis said. "Really, there are several dozen insects that eat on cotton, but only a half dozen do damage in this area. With a little training, any farmer can learn to recognize them instantly."

Mr. Davis advises cotton growers to go into the fields at least two or three times a week and pick a hundred bolls or terminal buds at random. If as many as four or five insects or the eggs of insects are found, he should consider poisoning them. The farmer can follow directions given in the Extension Service Insect Guide, or contact his county agent for assistance.

"Too many farmers just wait," Mr. Davis said, "and think maybe the wind or hot weather or something else will take care of the insects. He should act promptly, because an application or two of the proper insecticide might save him hundreds of dollars."

Final Wheat Quota Vote Reported

WASHINGTON — Final results of the referendum held June 25 in the 36-state commercial wheat producing area show that 77.3% of the farmers voting favored marketing quotas for the 1956 wheat crop, the U.S. Department of Agriculture reported last week.

This differs only slightly from the preliminary referendum returns announced June 26, which indicated a favorable vote of 77.5%. Approval by two thirds of those voting is required if quotas are to be effective.

Of the final total vote, 268,817 (77.3%) favored marketing quotas for 1956-crop wheat and 78,835 (22.7%) were opposed.

Following is a state-by-state list of favorable percentages in the voting, with the total votes in parentheses:

Arkansas (305) 86.6%, California (1,138) 61.2%, Colorado (8,389) 72.6%, Delaware (219) 76.7%, Georgia (555) 90.8%, Idaho (7,433) 76.7%, Illinois (14,425) 58.7%, Indiana (11,351) 59.1%, Iowa (1,280) 81.6%, Kansas (57,384) 73.4%, Kentucky (2,182) 91.6%, Maryland (1,073) 53.8%, Michigan (8,061) 51.4%, Minnesota (10,836) 95.9%, Missouri (12,777) 58.8%, Montana (17,723) 87.3%, Nebraska (26,162) 63.4%, New Jersey (222) 53.2%.

New Mexico (942) 74.5%, New York (2,006) 43.2%, North Carolina (1,625) 89.1%, North Dakota (72,379) 95.8%, Ohio (13,300) 44.3%, Oklahoma (17,884) 78.3%, Oregon (3,595) 74.5%, Pennsylvania (2,149) 31.7%, South Carolina (1,200) 94.5%, South Dakota (21,323) 93.5%, Tennessee (947) 78.8%, Texas (13,041) 86.6%, Utah (1,304) 60.3%, Virginia (1,454) 74.2%, Washington (11,320) 76.0%, West Virginia (128) 34.4%, Wisconsin (77) 66.2%, Wyoming (1,464) 71.1%; U.S. (347,652) 77.3%.

DUSTER KILLED

WINCHESTER, KY. — Homer S. Peck, 26, Winchester, was killed when a plane he was piloting crashed from about 200 ft while dusting the tobacco farm of J. C. Codell, Jr., near Winchester. He was spraying tobacco as a representative of the Kentucky Aerospray, Inc. of Lexington.

May Super Output 12% More Than For Same Month Last Year

WASHINGTON — U.S. production of superphosphate during May amounted to 210,311 short tons (100% A.P.A.), according to the Bureau of the Census, Department of Commerce. This figure represents a decrease of 10% from the revised April, 1955, output and is 12% more than the figure reported for the corresponding month of 1954.

Shipments of all grades of superphosphate totaled 108,283 tons for May or a decrease of 43% from the previous month's volume and a 9% increase from the figure reported for May, 1954. Stocks on hand at the end of May were 11% more than those held on May 1, 1955 and 20% more than the quantities on hand as of May 31, 1954.

Superphosphate production for the period of July, 1954, through May, 1955, totaled 2,101,736 short tons, a 5% gain over output of 2,011,125 short tons for the corresponding period a year earlier.

Shipments for the first 11 months of this fiscal year were 1,358,799 short tons, a gain of 10% over the 1,240,897 short tons shipped during the corresponding 1953-54 period.

L. B. Horger Retires From Bemis Bag Post

NORFOLK, VA.—L. B. Horger, assistant manager of the Bemis Bro. Bag Co. plant here has retired at the end of 30 years of Bemis service. He plans to devote his time to the operation of his farm in the Piedmont section of Virginia.

Heads Division

WASHINGTON — Theodore S. Hodgins, vice president of Reichhold Chemicals, Inc., has been appointed as director of the Chemical & Rubber Division, Business & Defense Services Administration. He succeeds H. W. Bertine, General Chemical Division, Allied Chemical & Dye Corp.



CALSPRAY BREAKS GROUND—California Spray-Chemical Corp. officials look over the plans for the initial dredging and fill operations at Calspray's new fertilizer plant site in Richmond, Cal. From left to right are: L. R. Gardner, vice president and manager, research and development; E. W. Cannon, vice president and manager, marketing; A. W. Mohr, president; C. E. Cody, regional manager, West marketing; Leslie Hamilton, coordinator of fertilizer operations; P. S. Williams, vice president and chief engineer, and Calvin Dorough, superintendent, fertilizer, manufacturing.

CALSPRAY

(Continued from page 1)

solution plant will be built by the Chemical and Industrial Corp. of Cincinnati.

The firm is the representative of the French PEC (Potasse et Engrais Chimiques) complex fertilizer process and will build the first PEC fertilizer

plant to be built outside of Europe for Calspray's pelleted fertilizer plant. The site of the new fertilizer plant is being dredged by Associated Dredging and fill is being brought in by Walsh Construction Co.

The new plants will produce ammonium nitrate solutions, ammonium sulphate, anhydrous ammonia, aqueous ammonia, and high analysis pelleted fertilizers. Production is scheduled for the summer of 1956.



WORLD REPORT

By **GEORGE E. SWARBRECK**
Cropplife Canadian and Overseas Editor

Few countries go to the trouble of calculating their annual losses from weeds, either in terms of wasted crop production or in terms of money. If they did, they might find the results both astonishing and disconcerting.

H. E. Wood, chairman of the Manitoba government's weeds commission, has made a deep study of the situation as it affects the farmers of Canada's three prairie provinces of Manitoba, Saskatchewan and Alberta. He calculates that the loss is in the region of \$255 million a year.

Another authority, quoted by the Du Pont Co. of Canada, Ltd., puts it differently. This indicates that 3 bu. to the acre is the conservative estimate of the increase in yield when weeds are controlled in cereal crops. This represents approximately an increased profit of \$2.80 to the acre.

Mr. Wood breaks down his figure of \$255 million to show dockage losses at \$40 million; competition to crops, \$166 million; tillage control costs \$35 million; delayed seeding costs \$4 million; and chemical control costs \$10 million.

Using these figures for a base, Mr. Wood further calculates that weeds are levying an annual total throughout Canada of at least one third of a billion dollars.

This, commentators say, is an avoidable loss. How? By spending more money on chemical control. Canada is well advanced in its adoption of the products of the agricultural chemical industry but more remains to be done. How true, then, must be the criticism as it concerns other countries.

New Shaft

The Potash Company of America announces that the sinking of a shaft for the mining of potash in Saskatchewan will probably begin in about three months.

J. B. Cummings, the firm's resident manager at Patience Lake, 14 miles east of Saskatoon, states that plans are being made to sink a 16 ft. shaft 3,000 ft. below the surface. The excavation, which will take more than a year to complete, will have to be that deep in order to gain access to the rich deposits of potash known to be below the surface.

Other firms are already well on their way towards completion of their plans and one shaft is now approaching the final stages. Several difficulties had to be overcome, one being the looseness of the soil at certain levels. A freezing process was evolved to get through the crumbling surface and it is likely that Potash Company of America will have to adopt that or a similar engineering process, local observers say.

If the potash deposits are proved to be present in the expected quantity, the Saskatchewan reserves will rank among the most valuable in the world and could make an appreciable difference to the agricultural economy of North America.

Barter Deal

Egypt and Czechoslovakia have signed a barter agreement. Under the pact Egypt will provide cotton and phosphates in return for heavy and light industrial products from Czechoslovakia.

New Ammonia Plant

A new plant in which ammonia will be manufactured from oil is to be built by the British firm of Imperial Chemical Industries, Ltd., at Billingham. The new project is located adjacent to the existing plant.

This is the first expansion undertaken by the company in the area since 1935.

The new process, which will be similar to that used in some ammonia manufacturing plants in the U.S., depends upon the oxidation of oil under pressure, whereas the older method, that now is in use at Billingham, utilizes gases produced by coke ovens and a water gas plant.

Dutch Anniversary

The Nitrogen Fixation Works, a part of the Netherlands State Mines, is celebrating the 25th anniversary of its foundation this year. The company claims to be the third largest nitrogen plant in Western Europe and to rank as one of the 10 largest in the world.

When ammonium sulfate was first produced in 1930, nitrogen production was assessed at 20,000 tons a year. During the next 10 years production went up by stages to a total of 60,000 tons a year as new factories were built.

The company added production facilities for calcium ammonium nitrate, phosphate ammonium nitrate, and calcium nitrate. In the fertilizer year 1939-40 total fertilizer production reached 280,000 tons.

Since the end of the war, a synthesis gasworks and a third nitric acid factory have been added while other plants have been enlarged. Now the company has a pilot plant producing urea.

The firm, with an annual productive capacity of 700,000 tons of nitrogenous fertilizers, now ranks as the largest in Holland. Half the output goes for use on the domestic market while considerable quantities move into export channels.

Korean Need

Korea wishes to import more ammonium sulfate, 21% nitrogen, white crystal. Supplies are urgently needed to aid in the country's redevelopment.

One company, Taisung Sanup Chusik Wheisa, located in Seoul, wishes to purchase 20,000 metric tons, January to March shipment, and 10,000 tons, July to August shipment, c.i.f. Pusan or Mokpo. If business can be arranged, the demand is likely to become an annual one, the firm states.

New Control for Weeds In Roses Developed

BERKELEY, CAL. — A new technique for controlling weeds in commercial rose growing has been developed by scientists at the University of California.

A single application of CMU has been found by the scientists to provide effective control of weeds during the spring months when growers normally are forced to remove weeds by hand. The tests were conducted by Boysie E. Day, assistant plant physiologist on the Riverside campus in cooperation with the Agricultural Extension Service and local growers.

Quick Action Is Answer to Aphid Threat in Canada

WINNIPEG—Farmers and government agricultural officials, aided by a quick response from both Canadian and American agricultural chemical companies, are controlling an infestation of English grain aphids over wide areas of prairie farmland.

As the attack developed, ruining thousands of acres of crops, supplies of malathion ran out, thus presenting a serious problem. However, malathion provided an effective answer. Developed by American Cyanamid Co., it is formulated in Canada by Canadian Industries, (1954) Ltd. of Montreal, and Chipman Chemicals, Ltd. of Winnipeg. CIL 54 immediately arranged with American Cyanamid to fly in an initial cargo of 13,000 lb. from New York for distribution by Chipman. Since then, further deliveries have been made by means of the airlift. Two tons of oil, used in emulsifying malathion to make it efficient for boom spraying, were flown in from Toronto.

In addition to the efforts of the chemical firms, Walter Kroeker, president of the Vegetable Growers Association of Manitoba, with his father, A. A. Kroeker, and his brother, Peter, began to truck in the insecticide from Winona, Minn., 600 miles from his home base at Winkler, Man.

Though only small quantities could be distributed on a local basis, the district managed to knock out the aphids before they could do much damage, Mr. Kroeker said. Then, he added, it was decided to tie-in with the Winnipeg Gardeners' Cooperative and distribution began through the Red River Valley. So far 10,000 gal. have been handled and arrangements are being made to supply farmers in Saskatchewan.

Dr. R. D. Bird of the Canadian government's entomology laboratory at Brandon, Man. said the infestation had become province-wide in Manitoba and that the insects were making inroads on all barley crops in the three prairie provinces. He added that there is some indication of a let-up as the barley matures.

In some cases, malathion has been sprayed from the air. Farmers have paid tribute to the prompt action of CIL 54, the American Cyanamid Co., and Chipman Chemicals in providing supplies so speedily. Organization in Winnipeg was in the hands of George Pugh, manager of Chipman's agricultural chemical division.

Local Grasshopper Trouble Expected In California

SACRAMENTO—California is approaching the peak of the grasshopper season with the prospect of local damage to crops.

Robert Harper, assistant chief of the State Bureau of Entomology, said, however, that he does not believe that damage will be extensive or severe.

"This is not an emergency year, but we expect a good deal of local trouble will develop," he said.

Range lands carrying up to 75 grasshoppers a square yard have dried out and the insects soon will be on the move to adjacent crop lands in their search for food, he said.

Already local control measures have proved necessary to repel an invasion in the Devil's Den area on the Kern-Kings County line where the pests threatened alfalfa, cotton and melons.

Also listed as trouble spots were El Dorado, Amador, Butte, Tehama and Shasta counties in the north and San Diego and Riverside counties in the south.

Gloomicides

A man and woman visiting a mental hospital asked if they might be shown around. Their guide was one of the patients, who showed them through the various buildings and over the grounds. When they came to the dining hall the woman noticed that a large clock on the wall showed the wrong time and said to her guide: "Why, that clock isn't right." The man patiently explained: "Ma'am, I know it isn't right. If it were it wouldn't be here."

★

The guest who keeps saying he must be going usually doesn't mean it any more than you do when you ask, "What's your hurry?"

★

Nowadays, when the child outgrows Santa Claus, he is old enough to vote for someone who will take his place.

★

If you put off until tomorrow what you should do today, someone may invent a machine to do it for you.

★

A spinster had a lone fling in New York. When she returned her friends crowded about and asked, "Well, what kind of time did you have?" She replied dryly: "Eastern Standard."

★

A frightened householder excitedly reported to police headquarters that he had been struck down in the dark outside his back door by an unknown assailant.

A young policeman was sent to the scene of the crime to investigate and soon returned to headquarters with a lump on his forehead and a glum look on his face.

"I solved the case," he muttered. "Amazingly fast work," his superior complimented him. "How did you accomplish it?"

The young cop explained, "I stepped on the rake, too."

★

Three-fourths of the earth's surface is under water, and most of the rest of it is all wet.

★

The younger generation will learn the value of money when it begins paying off our debts.

★

We know a fellow who became so excited reading about cigarets and lung cancer—he swore off reading.

★

The club doorman tripped as he rushed out to open a car door, and fell headlong. "George, do be careful!" cried the agonized club manager. "They might think you're one of the members."

★

One man's definition of an ideal wife: one who remains faithful to you but tries to be just as charming as if she weren't.

★

A little boy was about to purchase a ticket for a movie in the afternoon when the box office man asked:

"Why aren't you at school?" "Oh, it's all right, sir," said the youngster earnestly, "I've got the measles."

★

On the first day of school the teacher explained that if anyone had to go to the washroom he should hold up two fingers. One puzzled little boy plaintively asked: "How's that going to help?"

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When you buy things for a son watch out for the accompaniment.

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MEETING MEMOS

Aug. 1-5—National Shade Tree Conference, Annual Meeting, Mar Monte Hotel, Santa Barbara, Cal., L. C. Chadwick, Secretary-Treasurer, Ohio State University.

Aug. 8-10 — Summer Meeting of North Central Division, American Phytopathological Society, Wooster, Ohio; further information from H. C. Young, Dept. of Botany & Plant Pathology, Ohio Agricultural Experiment Station, Wooster, Ohio.

Aug. 9-11—Ohio Pesticide Institute Meeting and Field Tour, Wooster, Ohio; Dr. J. D. Wilson, Ohio Agricultural Experiment Station, Wooster, Secretary.

Aug. 10—Kentucky Fertilizer Conference; Guilford Theatre, University of Kentucky, Lexington.

Aug. 15—National Joint Committee on Fertilizer Application, Cooperative Meeting with the American Society of Agronomy, University of California, Davis Campus.

Aug. 15-19 — American Society of Agronomy and Soil Science Society of America, University of California, Davis Campus.

Aug. 15-20—Farm & Home Mechanization Pageant, Michigan State College, East Lansing, Mich.

Sept. 7-8—Corn Belt Anhydrous Ammonia Conference, University of Illinois, Champaign-Urbana Campus, Advance Registrations Room 216, Davenport Hall, Urbana, Ill.

Sept. 7-9 — National Agricultural Chemicals Assn., Spring Lake, N.J.; Lea S. Hitchner, NAO Executive Secretary, 1145 19th St. N.W., Washington 6, D.C.

Sept. 7-9 — Ninth Annual Beltwide Cotton Mechanization Conference, Texas A&M College, National Cotton Council of America, Box 18, Memphis 1, Tenn.

Sept. 11-16—American Chemical Society, National Meeting, University of Minnesota, Minneapolis.

Sept. 28-30—New England Fertilizer Conference, Poland Spring House, Poland Spring, Maine.

Oct. 11—Western Agricultural Chemicals Assn., Annual Meeting, Hotel Claremont, Berkeley, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose, Cal., Executive Secretary.

Oct. 17-18 — Fertilizer Section, National Safety Congress, LaSalle Hotel, Chicago; Thomas J. Clarke, Chairman.

Oct. 27—Middle West Soil Improvement Committee, Annual Meeting, Sherman Hotel, Chicago; Z. H. Beers, Executive Secretary, 228 N. LaSalle St., Chicago, Ill.

Nov. 2-3 — Annual Convention, Pacific Northwest Plant Food Assn., Pilot Butte Inn, Bend, Ore.; Leon S. Jackson, 702 Lewis Bldg., Portland, Ore., Secretary.

Nov. 4—Fertilizer Section, South Carolina Annual Accident-Prevention Conference, Hotel Francis Marion, Charleston, S.C., Anton L. Foster, International Minerals & Chemical Corp., General Chairman.

Nov. 3-4—Northeastern Division, American Phytopathological Society, Eastern States Farmers Exchange, Inc., 26 Central St., West Springfield, Mass. B. H. Davis, Department of Plant Pathology, Rutgers University, New Brunswick, N.J., secretary.

Nov. 7-8—California Fertilizer Assn., Thirty Second Annual Convention, Hotel Mark Hopkins, San Francisco; Sidney H. Bierly, Executive Secretary & Manager, 475 Huntington Drive, San Marino, Cal.

Nov. 17-18—Nitrogen Solution Field Day, National Nitrogen Solution

Assn., State Armory, Springfield, Ill.; Roy F. Broyhill, Dakota City, Neb., meeting chairman.

Nov. 29-Dec. 2 — Entomological Society of America, Netherlands Plaza Hotel, Cincinnati.

Dec. 5-7—Agricultural Ammonia Institute, Kansas City; Jack F. Oriswell, Executive Vice President, Claridge Hotel, Memphis, Tenn.

Dec. 5-7—Chemical Specialties Manufacturers Assn., 42nd Annual Convention, Roosevelt Hotel, New York; H. W. Hamilton, 50 E. 41st St., New York 17, N.Y., Executive Secretary.

Dec. 15-16—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Sponsored by the National Cotton Council.

Dec. 28-30 — American Phytopathological Society, Atlanta, Ga.; Glenn S. Pound, University of Wisconsin, Madison, Wis., Secretary.

1936

Jan. 4-6—Weed Society of America, Charter Meeting, Hotel New Yorker, New York, W. C. Shaw, U.S. Department of Agriculture, Beltsville, Md., Secretary-Treasurer.

Jan. 15-17—New Mexico Grain & Feed Dealers Assn., Annual Convention, Hilton Hotel, Albuquerque, with Special Portion for Fertilizer and Farm Chemical Dealers, H. B. Henning, Albuquerque, Secretary.

Feb. 15-17—California Weed Control Conference, Sacramento and Davis, Cal.; Oliver A. Leonard, Botany Dept., University of California, Davis, Cal., Secretary.

Feb. 15-17—Western Weed Control Conference, Sacramento and Davis, Cal.; W. C. Robacker, U.S. Department of Agriculture, Nevada Agricultural Experiment Station, Reno, Nev., Secretary-Treasurer.

Jan. 26-29 — Agricultural Aircraft Assn., Inc., Sixth Annual Convention, Wilton Hotel, Long Beach, Cal.; Wanda Branstetter, Route 3, Box 1077, Sacramento, Cal., Executive Secretary.

Alabama Cotton Acreage Takes New Nose-Dive

AUBURN, ALA.—Alabama's rapidly dwindling cotton acreage has taken another nose-dive, leaving it at the lowest point in nearly a century. And cotton is expected to give way this year for the first time to livestock products, including poultry and eggs, as the number one money-maker in Alabama's farm setup.

Foy Helms, Alabama Polytechnic Institute Extension Service, has pointed out that the 1,005,000 acres planted to cotton this year is well under Alabama's already small 1,102,000-acre allotment. Even though farmers planted more of their allotted acreage this year than last . . . slightly under 9% of this year's allotment remains unplanted, as compared with 12½% last year.

The drop leaves Alabama with the smallest cotton acreage since 1866.

Mr. Helms predicted that livestock and poultry will bring in over half the state's cash farm receipts this year.

MINOR ELEMENT TRIALS

CLEMSON, S.C. — Demonstrations in Chesterfield County, S.C. the past two years have shown that 5 lb. colemanite and 5 lb. manganese sulfate per acre have increased cotton yields.

Educator to Address Cotton Mechanization Conference Banquet

COLLEGE STATION, TEXAS—Dr. Kenneth McFarland, Topeka, Kansas, nationally known educator and lecturer, will address the ninth annual Beltwide Cotton Mechanization Conference here, Sept. 7-9. He will be the principal speaker at a banquet on the evening of Sept. 8.

Dr. McFarland in 24 years' experience as a school administrator gained nationwide recognition. He designed and built the modern McFarland Trade School at Coffeyville, Kansas. An educational consultant and lecturer for General Motors, he is being brought to the conference through the courtesy of that company.

The banquet will be one of the highlights of the three-day conference, sponsored by the National Cotton Council in cooperation with the Texas A&M College System, USDA, Cotton Belt land grant colleges and the Farm Equipment Institute.

A tour of Texas A&M's principal cotton research facilities and demonstration of experimental equipment, including stalk disposal units, are scheduled on the afternoon of the second day.

On the final day, conferees will leave in the morning for a tour of the Blackland area, Lankart Seed Farm, and the Temple Experiment Station. A mechanized demonstration at the Temple Station featuring defoliation, desiccation and stripper-type harvesting, will conclude the conference.

Fulton Firm to Urge Burlap Bag Dyeing

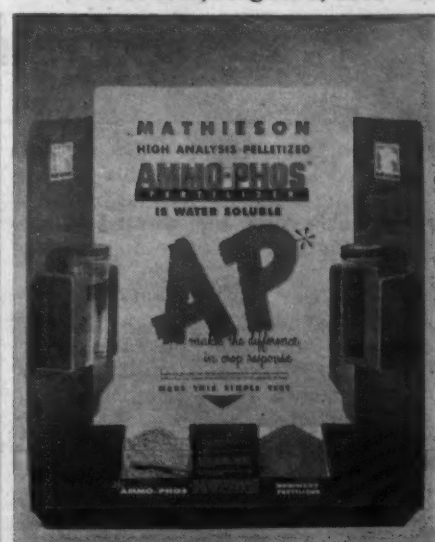
NEW ORLEANS, LA.—A coordinated promotion campaign to show housewives how they can re-use and dye burlap bags will be launched soon jointly by the Fulton Bag & Cotton Mills and Rit Dyes.

Attempting to capitalize on the recent enlarged use of natural colored and dyed burlap in home decorating and wearing apparel, Fulton asked Rit to develop a dye for home use. The result, according to Fulton officials, is that housewives will soon be able to quickly transform empty burlap bags into attractively colored goods at a fraction of the cost they would have to pay for the material in stores.

The campaign will feature Rit color suggestions as well as pattern ideas recommended by a fashion consultant for making articles from the empty bags after dyeing. Fulton officials anticipate that this promotion will create a strong sales demand for burlap bags.

Open House

WALTHAM, MASS.—The University of Massachusetts Field Station at Waltham will open its doors in a special public "open house" Aug. 6. Forty-one years of progress in research and extension work will mark this year's open house.



Ammo-Phos Display

Olin Mathieson Provides Dealers With 'Do It Yourself' Display

BALTIMORE—The "do-it-yourself" movement has invaded selling with the display shown above, now being supplied to its Ammo-Phos fertilizer dealers by Olin Mathieson Chemical Corp. The display provides two plastic bottles for water plus samples of Ammo-Phos and an ordinary fertilizer. The prospective customer is invited to spoon a sample of each kind of fertilizer into the bottle and test water-solubility for himself.

The copy reads, "Experiments prove that crops take up more phosphate from water soluble Ammo-Phos fertilizer than from ordinary mixed fertilizers. It's the AP (Ammo-Phos) that makes the difference."

"This water solubility of Ammo-Phos means that your growing plants have all of the plant food available. You get what you pay for, and your crop gets what you put into the ground. AP makes the difference in crop response."

Olin Mathieson has concentrated its advertising for fertilizer this season on the AP theme. In addition to the Ammo-Phos trade mark, the initials are made to read Added Profits, Available Phosphorus, Advance Protection, Ammonia Products and Agricultural Program.

The campaign uses magazine and newspaper advertising, publicity, billboards, radio, TV, literature, direct mail and point of sale displays for the biggest push this manufacturer of high analysis pelletized fertilizer has put behind the product.

Doyle, Kitchen and McCormick is the agency. Charles J. Murphy handles advertising for Olin Mathieson's agricultural chemicals.

FEED • FERTILIZER
BRADLEY & BAKER

NATURE and PREVENTION of PLANT DISEASES

By K. STARR CHESTER, Ph.D.—Stresses the practical aspects of plant disease control. Presents the essential features of plant pathology as exemplified in the leading diseases of important American crops. Extensive revisions of seed treatment, and spraying and dusting of fruits and vegetables are included. The latest developments in control practices, including the slurry, pelleting and vapor-heat methods of seed treatment, new non-metallic organic fungicides, innovations in methods of spraying and dusting are discussed.

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COMMERCIAL FERTILIZERS, Their Sources and Use

4th Edition, by GILBEART H. COLLINGS, Ph.D.—Based upon the author's practical experience as an experiment station agronomist and teacher. Incorporates information on recent developments by agronomists, chemists, engineers and fertilizer manufacturers. An authoritative source on all problems concerning commercial fertilizers and their use in gaining larger yields of field and horticultural crops.

522 Pages; 160 Illustrations\$5.00

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CROPLIFE, 2501 Wayzata Blvd., Minneapolis 5, Minn.

GREAT PLAINS MEETING

(Continued from page 1)

mixed liquid fertilizers, Dr. Strauss indicated at the start of his address that he intended to "pull no punches" in his discussion, but wanted to present a factual, objective appraisal of the matter.

In answer to the hypothetical question, "should I set up a plant for the manufacture of liquid mixed fertilizers," Dr. Strauss outlined some of the matters to be taken into consideration.

Illustrating his points with chalk drawings on a blackboard, he said that simplified methods of production are best. Heat is bound to be generated in the process of manufacturing liquid mixed fertilizers and a cooling system is needed in the mixing vat to avoid loss through evaporation and also through loss of water.

As to costs of production, he said that one man per shift should be able to produce approximately ten tons an hour, giving the plant a total of 240 tons in a three-shift, 24-hr. day.

Advantages of liquid mixes included the fact that the material can be applied while still hot, and it also can be applied effectively in below-freezing weather. The product itself is clear, but may be sticky, he said. It is not toxic to the applicator, it was reported, since the speaker said he once accidentally was covered with the material with no ill effects other than the discomfort of having the sticky liquid on his skin.

One of the pitfalls of manufacturing liquid mixes, Dr. Strauss pointed out, is its tendency toward crystallization which increases with higher nutrient values. About 30 units are the limit, he said, with 28 being about the working limit. However, Dr. Strauss added that these disadvantages were largely overcome through the ease of handling which appeals to farmers.

Many analyses of liquid mixes are possible, he reported, but some appear to enjoy more popularity than others. A 4-10-10 is most popu-

lar in Indiana, he said, while a 12-8-4 is sold largely for pasture application. Other grades include 9-9-9; 13-15-0; 6-18-6; and 8-24-0.

As to how much of a trade area should be covered by a liquid fertilizer plant making complete mixes, he said that in his opinion, one plant every 200 miles would be more realistic than one every 35-40 miles as is sometimes regarded as a rule of thumb. Shipment of liquid mixed fertilizer is no problem, even where distances run from 200 to 400 miles, Dr. Strauss said. An output of 40,000 tons a year is a lot, he reminded and under present conditions, at least, a 35-40 mile business area is not usually enough to absorb this type of production.

He urged anyone with a yen for manufacturing mixed liquid fertilizers, to look into the matter thoroughly from all angles and "get all the facts." He recommended that the services of a competent chemist should be acquired to consult on technical matters involved.

Such a technical man can help to avoid troubles stemming from non-uniform mixes which would affect analysis. Dr. Strauss reminded his audience that once a batch comes out with incorrect proportions, it is impossible to "regrind" it as can be done with dry materials.

As to the future for the trade, Dr. Strauss declared that "liquid mixed fertilizers have a very definite place in the industry." The ease of handling in manufacturing, on the one hand, plus the labor-saving features on the user level, will play a strong part in building up sales.

Dr. Strauss said he expects some day to see storage tanks for liquid fertilizers on farms, just as oil and gasoline are kept there now. Custom operators are presently hired to do most of the application, but when farmers observe the ease with which liquid fertilizers are applied, they will begin doing it themselves, Dr. Strauss predicted.

In a question-and-answer period following his formal talk, Dr. Strauss brought out that insecticides may be added to liquid plant food with comparative ease, but that some pesticides are not now compatible with such mixtures. Herbicides may also be added, he said, including pre-emergent types. He warned, however, that in these cases, special care must be exercised in the use of such materials.

Prof. Chapman, who described himself as a "John the Baptist" who for the past 39 years has been a "voice crying in the wilderness" for greater use of nitrogen and other plant foods, presented a talk, "Anhydrous Ammonia, an Agricultural Miracle."

The lack of nitrogen in many midwestern soils is the most serious limiting factor in good crop yields, he said. Speaking of Iowa, he declared that the secret of its tall corn is "nitrogen, good soils and hot weather."

Prof. Chapman predicted that the need for nitrogen is going to continue. Not only soil scientists see the need for greater application of this element, he said, but also numerous manufacturing companies who have invested nearly a half-billion dollars in new plants and in expanding present properties.

"We are now entering a period of nitrogen production, the like of which the U.S. has never seen before," he observed. However, this great output could be "only a drop in the bucket" in view of the numbers of people in the world who need to be fed better. There should be no problem of surpluses, he declared, but rather, one of finding the market for what we produce.

He reviewed some of the older philosophies regarding soil fertility,

LIFE MEMBERS

DES MOINES—In recognition of their outstanding work in furthering the cause of nitrogen in American agriculture, honorary life memberships in the Great Plains Agricultural Ammonia Assn. were presented to four speakers who appeared on the program of the association's meeting here July 20-21. The four were Dr. C. J. Chapman, University of Wisconsin, Madison; Dale O. Hull, Iowa State College, Ames; Dr. John C. Strauss, Liquidizer Corp., Vincennes, Ind., and Dr. E. R. Duncan, Iowa State College. Certificates of the honor were presented to the recipients by Tully Talbot, Chemco, Audubon, Iowa, representing the Agricultural Ammonia Institute, at the banquet.

including the old idea that additions of lime, phosphate and potash were sufficient, with legumes and manures supplying adequate amounts of nitrogen. This practice has proved inadequate to produce needed yields of crops, he said, and now the emphasis is on the addition of quantities of nitrogen. Along with this development, the use of the other nutrients has also been increased.

Dr. E. R. Duncan, Iowa State College agronomist, cited the results of various tests indicating that the addition of nitrogen alone is not always sufficient, since the addition of phosphorus increases corn yields to a significant degree.

The 1-1-1 ratio in Iowa is not the best, according to soil tests, he said. In order to gain the optimum benefit from added nutrients, they should be calculated in keeping with the soil's needs to maintain a balance.

Dr. Duncan exhibited three stalks of corn grown on fields which have been planted to corn for 41 consecutive years. One stalk from a plot receiving no additional fertilizer material, represented plants which looked healthy but failed to produce good ears of corn. Yield from this plot ran about 40 bu. an acre. Another stalk, larger than that from the check plot, had received 300 lb. an acre of 0-20-20; and a third, which had been treated with nitrogen in addition, appeared more thrifty.

Nitrogen at the rates of 40, 60, and 120 lb. an acre was added, with no significant gain being noted between the last two. Both were better than the 40 lb. application, however. Dr. Duncan's talk concluded with the observation that the "miracle of nitrogen" must be taken with common sense and in keeping with the needs of other nutrients.

A talk by an advertising man, Pax Shaffer, of the L. W. Ramsey Agency in Davenport, Iowa, urged the GPAAA members to become more advertising and publicity-minded. He displayed a considerable number of advertising layouts made specifically for use in local newspapers, billboards, large and small, and copy for radio station announcements.

Built around the trade-marked character, "Andy Ammo," a cartooned figure attired in Scottish kilts to suggest the thriftiness of NH_3 use, the advertising copy was sparked by educational information geared to sell farmers on the ease of application.

Mr. Shaffer reminded his listeners that in order to be effective, advertising must be done wisely both from the standpoints of what the ads say and to whom they are addressed. Any advertising boosting the use of anhydrous ammonia accrues to the benefit of all in the business, he said.

Use of the GPAAA trade mark ("Andy Ammo") will identify individual members, and the use of advertising material being issued through the association will help to build up the business. Personal kits for members are being devised, complete with decals for putting on large tanks, scotch-plaid designs



AT ANHYDROUS DEMONSTRATION—Shown above are scenes from the field day demonstration held recently in Ames, Iowa by the Great Plains Agricultural Ammonia Assn. Upper photo: Dr. E. R. Duncan, Iowa State College extension agronomist discussing the fertilizer needs of corn and pointing out the effects of the nitrogen treatments on the demonstration plots in the background. Small signs on corn tell at what rate fertilizer was applied. Middle photo: Prof. C. J. Chapman, University of Wisconsin, discussing the need for nitrogen fertilizers. Lower photo: Demonstration of transferring ammonia from the storage tank to smaller portable tank. Proper equipment and handling methods were discussed by Dale Hull, extension agricultural engineer of Iowa State College who gave a running comment on the operation.

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Mr. Shaffer termed the market for NH₃ as "tremendous," saying that the present rate of sale amounts to from only 13% to 26% of the actual potential market. The biggest challenge is that of getting the farmer to accept this form of nitrogen. Inertia is one of the greatest obstacles to developing this type of business, he said.

Chairman of the meeting was GPAAA president, B. A. Frankl, who also addressed the group briefly to point out the positive side of selling anhydrous ammonia. He declared that the NH₃ salesman "really has something to talk about," since this product brings its users measurable profits ranging from 300% to 400%.

Responsibility for sales, however, rests with the people in the trade, although agricultural teachers and county agents are doing a good promotional job simply by talking about the product. Mr. Frankl warned against selling on the basis of price alone, emphasizing the need for added service. "We must work with the farmer right through the season," he declared.

A business meeting for GPAAA members occupied the morning of July 21, but at noon the group

journeyed northward to an experimental corn field near Ames, where demonstrations were presented by a number of firms. The transfer of NH₃ from storage tanks to nurse tanks and from thence to field tanks was done, with running commentaries by Dale Hull, extension agricultural engineer of Iowa State College, assisted by salesmen of the equipment being displayed.

Dr. Chapman and Dr. Duncan spoke to the group again, keying their remarks this time to the many farmers present. (The Thursday meeting was open to the public and had had extensive radio and newspaper publicity earlier. Hundreds of farmers, in addition to GPAAA members and exhibitors, were on hand.) Both speakers re-emphasized their convictions on the need of added fertility to gain high yields of corn and other crops.

Tully W. Talbot, Chemco, Audubon, Iowa, representing the Agricultural Ammonia Institute, acted as moderator of the speaking portion of the program.

The group's annual banquet was held Thursday evening at the Ft. Des Moines Hotel, following a "Friendship Hour," refreshments for which were furnished by nitrogen manufacturers.

VISITORS ASK MANY QUESTIONS

Russians "Steal the Show" at Anhydrous Ammonia Field Day

By LAWRENCE A. LONG
Editor of Croplife

AMES, IOWA — Members of the Soviet Agricultural Delegation, upon arrival at the field where the Great Plains Agricultural Anhydrous Ammonia Assn. was holding its demonstrations here July 21, practically stole the show.

Farmers on the fringe of the crowd of about 300 persons listening to an explanation of the various types of applicators by Dale O. Hull, Iowa State College extension agricultural engineer, spotted the foreigners and the word swept swiftly through the crowd: "The Russians are here!"

With Mr. Hull standing atop a sound truck, faithfully continuing to describe the best way to transfer ammonia from one tank to another, his crowd, or at least a sizeable portion of it, moved quietly over to a point several rods away, where a small group was crowded around a tractor and NH₃ applicator.

Soon the small group became a large one, with everyone trying to get close enough to the Soviets to hear their questions and the efforts of their interpreter to translate technical English into understandable Russian. And vice versa.

Questions asked by the visitors appeared to center around a desire to learn not only how the machines work, but also how much the operators earn; how many gallons of gasoline are required to treat an acre with ammonia; how many pounds of nitrogen can one apply to the acre; and who is boss on the farm.

Obviously making an effort to be affable, the visitors smiled at the curious and crowding American agriculturists and readily shook the hand of almost anyone who proffered it. One Russian, sporting a mouthful of stainless steel teeth, took on the appearance of a grinning Frankenstein when he broke into a smile. (Earlier, the visitors had demonstrated how well adapted these shining steel clipper were for eating corn on the cob. No one noticed, apparently, whether the cob, too, was chewed up and consumed.)

During demonstrations of equipment, the Russians all took copious notes in unintelligible scribbles,

jotting down what the salesmen said about the performance of each machine. They followed in the wake of each applicator, sometimes so closely that whiffs of ammonia would cause them to hesitate, but their actions indicated a dogged desire to learn everything possible about the achievements of America's decadent system.

Reactions of the crowd appeared to vary widely. Some in the group were wide-eyed, realizing that the visit of the Russians could have a profound effect on the future of world relations; others showed ill-concealed contempt in their expressions; while still others made mental notes and verbal comments about the clothing and manners of the Soviets.

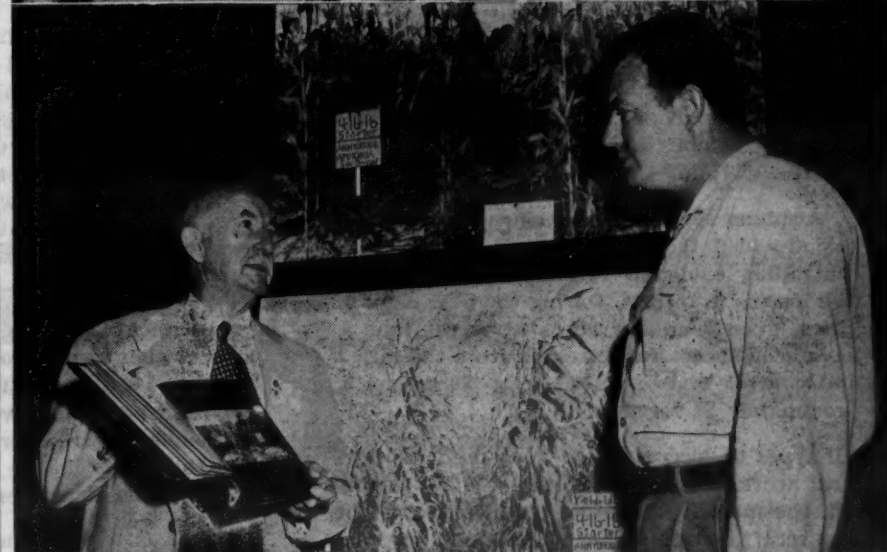
The sun beat down mercilessly on the dusty Iowa field, with the temperature standing somewhere near the 100 mark. Iowa farmers, attired in casual overalls and appearing reasonably cool under conditions with which they were accustomed, presented a considerable contrast to the Russian delegation whose handkerchiefs were kept busy wiping away perspiration from faces and necks.

"This might be one way to end the cold war," one observer remarked as he noted the sweat streaming down the leathery faces of the visitors. Other remarks expressed surprise that the Soviets "look about like we do," having apparently expected to behold beings in other than human form.

Still another comment overheard as one of the crowd looked over the Red group for the first time, was to the effect that "if THIS is the best Russia has to send over here, then their agriculture is likely to remain in a mess."

While in the U.S., however, the Soviets show intense interest in learning all possible about our agricultural methods and, perhaps more than many suspect, about our social and economic system.

At any rate, they received an eyeful of American methods that perhaps their Muscovite associates in Moscow may find hard to believe. If, indeed, they will dare to tell about all they saw over here!



AT GREAT PLAINS AGRICULTURAL AMMONIA MEETING—Pictured in top photo at the recent Des Moines conference of GPAAA, are the following officers: Charles Bourg, PV-82, Inc., Lincoln, Neb., director; James H. Andrew, Andrew Farm Store, Jefferson, Iowa, secretary-treasurer; B. A. Frankl, Mor-Gro, Inc., Algona, Iowa, president; Tully W. Talbot, Chemco, Audubon, Iowa, vice president, Agricultural Ammonia Institute; E. W. Thomas, Farm Service Corp., Booneville, Mo., director; Bob Jeep, Midwest Fertilizer Co., Tekamah, Neb., second vice president, and George Gigstad, Nortonville Nitrogen Fertilizer Co., Nortonville, Kansas, first vice president. Absent when the picture was taken is G. J. Schladoweller, Farmers Fertilizer and Supply Co., Parkston, S.D. In the center, is "Andy Ammo," trade-marked character to be used by GPAAA members on advertising and other literature.

Second photo: Speaker E. R. Duncan, Iowa State College, Ames, points out how nitrogen and other fertilizer materials contribute to the growth of tall, heavy-yielding corn. His audience is B. A. Frankl, GPAAA president.

Third photo shows Prof. C. J. Chapman, University of Wisconsin, (left) displaying his scrapbook of colored photos of corn response to nitrogen. Looking on is Tully W. Talbot, Chemco, Audubon, Iowa.

Lower photo was taken during talk by John C. Strauss, vice president, Liquidizer Corp., Vincennes, Ind. He utilized the blackboard extensively in illustrating points of his address on "Manufacture and Use of Complete Liquid Fertilizers."

Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

Farm Planes Add \$3 Billion

An addition of nearly \$3 billion to annual farm income in the United States can be attributed directly to the use of aircraft for control of weeds and insects, and in applying fertilizers, according to Texas A&M College.

This seems like a lot of money (and it is!), but the story of agricultural aviation backs up the statement solidly. Since the beginning of this phase of agriculture in 1919, the use of aircraft for applying various compounds has increased steadily.

Today, according to the Civil Aeronautics Administration, aerial pest control is done in every state on more than 200 different crops. Private aerial applicator firms operating over 7,000 aircraft dispense annually 644,000,000 pounds of dust-type chemicals and 80,000,000 gallons of liquid sprays, adding an estimated \$3 billion to annual farm income.

Despite the tremendous growth in agricultural aviation, only recently have airplanes been specifically designed for this purpose. The Ag-3, the second agricultural plane designed and built for sprays, dusting, fertilizing and seeding by Fred E. Weick, internationally known aircraft designer and engineer at Texas A&M College, is now undergoing flight tests. The small 135-horsepower plane was built with emphasis on low-speed, high maneuverability and pilot safety.

Airplane spraying with new insecticides has provided the first practical means for controlling epidemic outbreaks of destructive insects in forests. During the past eight years, over 5 million acres of forest land have been successfully treated from the air, and control costs reduced from \$3 to approximately \$1 an acre.

All types of aircraft have been used for agricultural work—blimps, helicopters and bombers, though the majority have been conventional-type, small aircraft converted for agricultural purposes.

The Soviets Get an Eyeful

In visiting typical farms in the midwest, the Soviet Agricultural Delegation must have experienced mixed feelings about the things they saw and heard in the nation's "breadbasket." None of us know, of course, what these hard-bitten Russians expected to find here, but it is a fair guess that there were surprises galore.

Having been subjected for many years to Red propaganda about the way American farmers are downtrodden, poverty-stricken, over-worked, thin and hungry, ripe for revolution against the capitalistic system, it must have come as a shock to find that not only were these appraisals wrong, but utterly and completely the reverse of actual conditions!

Probably the thing that is now worrying these sturdy Soviet representatives is what kind of a report they will make upon returning to their homeland, there to review their myriad notes and snapshots taken in the cornfields and farm homes of Iowa.

Party bosses in Moscow will probably lick their chops at the prospect of receiving confirmation of their pet ideas about decadent America, and this serves only to increase the dilemma facing the returning delegation. Should they risk a one-way ride to Siberia and tell the truth about American agriculture? Or, should they say, "Boss, you were right . . . things are in a terrible state in the U.S."

It is difficult, if not impossible, for Americans brought up under a constitution guaranteeing personal freedom, to see the picture from the viewpoint of these Soviets.

It is hard for us to see ourselves through the eyes of those who have never known anything but State rule, collectivism and the disappearance of all who dared to speak out against these things.

But there are some potent memories that the men of this delegation will harbor for the remainder of their lifetimes, however long that may be. They will recall eating watermelons at a community picnic; enjoying home-cooked meals in modern farmhouses, and visiting agricultural colleges and talking with scientists.

No doubt they will also remember attending a church service one Sunday, perhaps risking a brain-washing for this deed upon returning to their homeland. They will also recall their visit at an agricultural ammonia demonstration where a group of perhaps 300 farmers and tradesmen were in attendance without having been told by some political authority that they must go.

It is likely, too, that they will remember that our agricultural colleges are not puppets of some string-puller in Washington, hard as this fact is for a Soviet-bred official to comprehend.

Yes, the Russians came to get ideas, and we dare say they received more than they ever bargained for. No one, not even a case-hardened Communist, could drive through the rich Iowa cornfields on a hot July day without envying the richness and bounty of the land and its people. The evidence is so overwhelming that we should think no amount of rationalizing could wholly convince the foreign observers that what they saw was illusory.

It might also be interesting to have known what went through their minds upon visiting Iowa State College's laboratories where experiments were being conducted on double and triple crosses on hybrid corn. Did the term "double cross" ring a bell in their subconscious mentalities?

Be that as it may, the Russians made history of a sort in their visit to America's corn belt. Only future years will tell what the ultimate result is to be, but the chemical trade has the satisfaction of having played a big part in impressing these visitors. The new developments in pest control, fertilization and equipment for applying chemicals must have been one of the biggest things they will want to tell about back home.

Avoid 2,4-D-DDT Mixes

With farmers becoming more and more aware of economies available in the two-for-one application of insecticide-fertilizer mixtures, some are now wondering if they could combine insecticides with herbicides and make one application take care of both weeds and bugs.

Harold Gunderson, extension entomologist at Iowa State College gives a good answer to this question. He warns against use of DDT and 2,4-D together, emphasizing that this is not a desirable procedure. "You want 2,4-D on the weeds, not on the corn," he points out. "You want DDT on the corn, especially in the whorl. Application of 2,4-D in this area of tall, rapidly-growing corn, would cause severe brittleness and breakage," he warned.

This word should be passed along by dealers to growers who might be tempted to try such an operation.

Another hazard in this connection is that of putting 2,4-D in a tank used for insecticides. The herbicide is difficult to remove completely from containers, hoses and nozzles and if the same equipment is used later for insecticidal application on crops susceptible to 2,4-D, damage may be done.

So the answer is, "don't mix 2,4-D and insecticides." The saving in time may not be worth the inherent risk.



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Fertilizer Pays on Small Grain, Tests in North Dakota Show

FARGO—Some remarkable yield increases from use of fertilizer were reported by North Dakota farmers in the 1954 season, according to Virgil Weiser, North Dakota Agricultural College Extension Service soils agent. Up to 17 bu. more than unfertilized wheat yields were revealed by field harvest methods where comparisons were made by means of check strips left in fertilized fields.

Some of the larger differences attributed to fertilizer on other small grains were 20 bu. per acre with barley, 15 bu. with oats and 7 bu. with durum wheat.

A 17-bu. increase in wheat was obtained by Robert Gietzen, Glen Ullin, where 50 lb. per acre of 20-20-0 were applied on nonfallow land. Twenty-bushel increases in barley were obtained by Carl Throlson in Eddy County where 40 lb. 16-20-0, or 50 lb. 11-48-0 were applied on fallow. Richard Bultema, Wimbledon, Harry Johnson, Fillmore and Darrel Miller, Tyler, reported barley increases of 16 to 18 bu.

In 1954, reports on 146 such field comparisons were made to county agents. A summary of these results shows average boosts in yield in 1954 were in line with similar comparisons in other years.

Average increase for all 101 comparisons on wheat was 4.6 bu., durum 2.5 bu. in 12 trials and barley 9.6 bu. in 32 trials. Included in the averages were instances when no increase in yield resulted from fertilizer. There were seven such instances with wheat, two with durum and two with barley.

MEETING MEMOS

See Page 19

Control Program for Bindweed Outlined in Texas Bulletin

COLLEGE STATION, TEXAS — Bindweed can be controlled on large acreages of cropland through competitive cropping, intensive cultivation and the use of 2,4-D.

These practices are recommended as a result of experiments conducted in the Texas Panhandle since 1949 by A. F. Weise, agronomist for the Amarillo Experiment Station, and H. E. Rea, agronomist for the main station at College Station.

Wheat was the best competitive crop used. Sorghum was not easily established during the summer when the weeds were growing vigorously. A fallow-wheat system, using intensive cultivation during the fallow periods, eliminated 92% of the weeds in three years.

The 2,4-D was applied in the fall before the wheat was planted or in the spring when the wheat was fully tillered.

Patches of bindweed up to half an acre in size were eradicated with applications of soil sterilants, such as sodium chlorate, Concentrated Borascu, Atlacide, Polybor chlorate and Karmex W at rates of 5, 16, 7, 12 and three eights pounds, respectively, per square rod. One application of a soil sterilant seldom completely eliminated bindweed; retreatments usually were necessary for complete eradication.

Khapra Beetle Alarm Subsides in New Mexico

PORTALES, N.M.—The alarm that the Khapra beetle brought to farmers and specialists in New Mexico a year ago is slowly subsiding. The experts believe they have the beetle licked in this area. Nearly a year ago when the Khapra beetles were found in feed mills of Roosevelt and nearby Curry County, a tight quarantine was declared against all movement of grain into or out of the buildings.

Three of the huge warehouses, in which beetles had been found, were wrapped tightly with plastic, nylon-coated tarpulin and sealed. Then for 48 hours the interiors were subjected to an intensive application of deadly methyl bromide gas.

A fourth building could not be wrapped, but it was fumigated. The wrapped buildings will remain under quarantine for another six months, while the fourth one will be kept completely out of use for a year and a half.

As a result of the infestations, state inspectors will check feed mills, warehouses and other structures where the Khapra beetle might be found. These inspections will be made at two and a half month intervals, and will be under the direction of R. C. Dobson, state entomologist and head of the Plant Quarantine Service in New Mexico.

SOIL TESTING

FARGO—Soil testing service to farmers in North Dakota will be expanded and the cost to farmers for the tests is being reduced, according to North Dakota Agricultural College.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge \$2.25. Situations wanted, 10¢ a word; \$1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Classified advertising rate not available for commercial advertising. Advertisements of new machinery, products and services accepted for insertion at minimum rate of \$9 per column inch. All Want Ads cash with order.

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